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Naturopaths and Western herbalists' attitudes to evidence, regulation, information sources and knowledge about popular complementary medicines

L.A.Braun PhD^{a,b}, O.Spitzer MSocHlth^b, E.Tiralongo PhD^c, J.M.Wilkinson PhD^d, M.Bailey PhD^f,
S.G.Poole B.Pharm, Grad.Dip.Epidem.Biostat^e, M. Dooley B.Pharm,Grad.Dip.Hosp.Pharm^e

^a Cardiothoracic Surgical Research Unit, Department of Surgery, Monash University Alfred Hospital, Melbourne, Australia.

^b Department of Pharmacy, Alfred Hospital, Melbourne, Australia.

^c [School of Pharmacy & Griffith Health Institute](#), Griffith University, Gold Coast, QLD

^d School of Biomedical Sciences, Charles Sturt University, Wagga Wagga, Australia

^e Faculty of Pharmacy and Pharmaceutical Sciences, Monash University, Parkville, Australia

^f Department of Epidemiology and Preventive Medicine School Public Health & Preventive Medicine, Monash University Alfred Hospital, Melbourne, Australia.

Address for Correspondence and reprints:

Dr Lesley Braun

Pharmacy department

Lower Ground Floor

The Alfred Hospital

PO Box 315

Prahran Victoria 3181

Australia

Tel : +61390765267 ; Fax : +61390765275; l.braun@alfred.org.au

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Abstract

Background: The practice of naturopathy and Western herbal medicine (WHM) was built on traditional evidence but may be undergoing change with the advent of scientific evidence. The aims of this research were to provide a better understanding of practitioner's attitudes towards evidence, information sources, professional regulation and their knowledge about the evidence of commonly used complementary medicines (CMs).

Method: Naturopaths and WHM practitioners were invited to participate in an anonymous, self-administered, on-line survey. Participants were recruited using the mailing lists and websites of CM manufacturers and professional associations.

Results: Four hundred and seventy nine practitioners participated; 95% currently in practice. The majority (99%) thought well documented traditional evidence was essential or important, 97% patient reports and feedback, 97% personal experience, 94% controlled randomised trials and 89% published case reports. Significantly more recent graduates (less than 5 years) rated randomised trials as essential compared to others. Most (82%) respondents want information sources containing both traditional and scientific evidence. They currently use several resources; 74% CM textbooks, 67% conferences/seminars, 57% CM journals, 48% databases and 40% manufacturers information. The mean knowledge score was 61.5% with no significant differences between respondents with diploma or degree level education or by graduating year. Eighty-five percent of practitioners strongly agreed or agreed that practitioners should be formally registered to safeguard the public, 8% were unsure and 8% disagreed or strongly disagreed.

Conclusion: Naturopaths and WHM practitioners accept the importance of scientific evidence whilst maintaining the importance and use of traditional evidence. The majority are in favour of [professional registration](#).

Introduction

Complementary and alternative medicine is a broad term used to describe a variety of therapies and medicines (NCCAM). Many Australians use complementary medicine (CM) therapies and products. One national survey estimated the annual out of pocket expenditure on CM as AU\$4.13 billion (US \$3.12 billion) [1]. In Australia naturopathy and Western herbal medicine (WHM) is well established. A 2004 study estimated that approximately 1.9 million naturopathic and Western herbal medicine consultations are being conducted annually, generating an estimated turnover of AU\$85 million in consultations (excluding the cost of the medicines)[2]. These figures are a reflection of the substantial public interest in naturopathy and WHM.

Naturopaths and Western herbalists practice as primary health care providers and attend to the health care needs of people with a variety of conditions, usually within a private clinic setting [2]. The practice of both naturopathy and WHM focuses on patient education and personal responsibility, disease prevention and health promotion, and is underpinned by the philosophies of holistic healthcare and vitalism which recognises the body's innate healing capacity [3;4].

The modernisation of these professions has seen government accredited education providers include science-based subjects into their curricula such as physiology, chemistry, biochemistry and pharmacology, in addition to specific subjects about naturopathy and WHM [5]. The changing attitudes of the profession to include more scientific evidence is reflected in the content of popular herbal and complementary medicines texts and the Australian Journal of Medical Herbalism, the official journal of the National Herbalists Association of Australia [6]. Despite these external changes, little is known about naturopaths and WHM practitioners' attitudes to evidence in practice, how they view scientific evidence, whether having access to scientific evidence is important and their attitudes to traditional information in the light of the burgeoning scientific evidence base.

Currently the naturopathic and WHM professions are not subject to formal government regulation. Professional associations provide a form of self regulation by requiring members to have achieved minimum qualification levels, usually advanced diploma, undertake continuing professional education

and adhere to a code of ethics [5]. Some natural therapy associations favour statutory registration and more rigorous educational requirements for practitioners [7], but little is known about the opinions of practitioners themselves.

Some information exists in the literature about the attitudes, information seeking behaviours and knowledge of Australian pharmacists, pharmacy students and general practitioners, [as well as CM consumers](#), about complementary medicines [8-14]. Similar information is lacking about Australian naturopaths and Western herbalists even though their everyday practice involves providing patients with information about complementary medicines [15] and the prescribing and dispensing of such treatments when indicated.

Aims

The [primary](#) aims of this research were to provide a better understanding of naturopaths' and Western [herbalists'](#) attitudes towards evidence, information sources and knowledge about commonly used complementary medicines. [A secondary aim was](#) to determine the attitude of naturopaths and Western herbalists to formal registration of their professions.

Methodology

An anonymous, self-administered, web-based questionnaire was developed to meet the aims of the study. It was made available on a dedicated website which provided project information and a link to the survey questionnaire.

Whilst random sampling would have been the preferred option for obtaining data, this was not possible as there is currently no national register of naturopaths or WHM practitioners in Australia. Therefore a convenience sampling approach had to be undertaken. To encourage naturopaths and Western herbalists to participate, professional associations and specialist complementary medicine product distributors were contacted and asked to circulate project information and an invitation to participate to their association members or relevant practitioner customers.

Data collection took place over 5 weeks between March and April 2009. Data were manually entered by participants into SurveyMonkey™, an on-line survey tool. Consent was implied by agreement to complete the survey questionnaire. Ethics approval was obtained from the Alfred and Monash Human Research Ethics Committee, and subsequently from Charles Sturt and Griffith Universities' institutional ethics committees.

Questionnaire

The questionnaire was developed in consultation with the National Herbalists Association of Australia and an advisory group consisting of three pharmacists and a consumer advocate. The questionnaire consisted of 37 questions which were chiefly derived from previous surveys [2;16;17] and a report published by the Australian National Prescribing Service [18], and included new questions to meet the aims of the study.

Nine questions collected demographic and workforce information such as gender, age, highest educational qualification in WHM and/or naturopathy, years in practice, place of practice and graduating institution. All survey participants were asked attitudinal questions relating to the importance of different forms of evidence and the formal registration of the naturopathic and WHM professions. A sub-section of the questionnaire evaluated participants knowledge of the clinically proven benefits of commonly used CMs and clinically significant drug interactions and has been previously described in the literature [14]. The CMs included in this section were: fish oils, glucosamine sulphate, probiotics, echinacea, ginkgo, magnesium and coenzyme Q₁₀. Correct answers to this section were obtained using reference textbooks listed in the National Prescribing Service report of recommended quality CM resources [19].

Data analysis

Descriptive and inferential statistics were calculated using SAS version 9.1 (SAS Institute Inc., Cary, NC, USA). Differences in proportions between groups were compared using chi-square tests for equal proportions or Fishers Exact tests where numbers were small. A two sided p-value of 0.05 was considered to be statistically significant.

Results

The questionnaire was completed by 479 naturopaths and WHM practitioners. The majority (84%) were female and 12% had worked for less than 1 year as a practitioner, 30% had worked for 1-4 years, 22% for 5-9 years and 31% for 10 years or more. Nearly all survey participants (95%) were currently in practice, 69% either working alone or with other CM healthcare providers, 8% worked in industry, 7% listed pharmacy as their main place of work and 4% worked chiefly in a multidisciplinary clinic with medical practitioners. Information about naturopaths and Western herbalist's qualifications and year of graduation is presented in **Table 1**.

Recent naturopathic and **WHM** graduates (less than 5 years since graduation) were more likely to have attained an undergraduate degree qualification than a lesser qualification (54% vs. 28%; $p < 0.0001$). Practitioners that graduated 5 years ago or more were significantly more likely to have a graduate diploma compared to more recent graduates (22% vs. 7%; $p < 0.0001$).

Knowledge of commonly used CMs

The knowledge component of the questionnaire was scored by awarding 1 point for each correct answer and no points for an incorrect answer. A maximum correct score of 39 was possible. Most (80%) participants completed the knowledge section of the survey. The mean correct score for the knowledge section was 24 (61.5%) and the median score was 28 (71.8%) for the overall participant group.

Sub-group analysis was conducted to compare results between respondents. No significant differences were found in median scores for respondents whose highest qualification in naturopathy/**WHM** was a university degree or an advanced diploma. Additionally, no significant differences in median knowledge scores were found for practitioners who had worked in a pharmacy and those that hadn't. When practitioners of different graduating years were compared, once again, no significant differences were found for their median knowledge scores.

Sources of information about CMs

Naturopaths and WHM practitioners used a wide variety of information resources. The most popular were complementary medicine-specific resources such as CM textbooks, professional conferences and seminars and CM journals. The internet was also used as a means of accessing [information including](#) specific websites and the world wide web (Figure 1- multiple answers accepted).

Free text comments were received from 135 respondents who nominated their favourite information resources. The three most popular information sources were: 'Herbs and Natural [Supplements- An Evidence Based Guide](#)' [by Braun & Cohen](#) [19], 'various herbal medicine textbooks by [Kerry Bone](#)' and the Journal of Complementary Medicine (published by Australian Pharmaceutical Publishing Company, but no longer produced).

When assessing information resources, the main factor considered important to respondents was that it contained both traditional and scientific information (82%). Other important factors included being updated frequently (52%), the information had a scientific basis (50%), and the resource contained information about a wide range of CMs, those with evidence and those without (39%).

When recently graduated practitioners (within the last 5 years) were compared to others, it was found that significantly more recent graduates wanted information to be available on their desktop (29% vs. 20%; $p=0.025$); available at no cost (11% vs. 6%; $p=0.05$) and not produced by manufacturers (20% vs. 13%; $p=0.042$).

Study participants consider several different sources of evidence as either essential or important. The majority (99%) thought well documented traditional/historical use was either essential or important. In addition, 97% thought patient reports and feedback were either essential or important, 97% personal experience, 94% randomised controlled clinical trials with humans, 89% published case studies and 84% epidemiological studies.

When sub-group analysis was performed, it was found that significantly more recent graduates (5 years or less) thought randomised controlled trials were essential compared to others (33% vs 21%;

p=0.003) whereas significantly more older graduates rated them as important (52% vs 43%; p=0.05). There were no other significant associations between attitudes to the other types of evidence and practitioners' graduation year.

There were also no significant differences in the responses of practitioners having attained an advanced diploma, worked in a pharmacy or attained their naturopathic/WHM education at a university and others in regards to attitudes to the listed types of evidence.

Registration of the profession

A five point Likert scale and free-text box was used to explore participants' attitudes to the possible registration of their professions. When asked their opinion about whether naturopaths and WHM practitioners should be formally registered to safeguard the public, 58% of respondents strongly agreed, 27% agreed, 8% were unsure, 8% disagreed or strongly disagreed.

There was a significant difference in the 'strongly agree' responses to the attitudinal statement (p=0.0045) which related to graduation period. There was also a significant difference for the 'agree' responses and graduating year (p=0.03) but no other significant differences for the other 3 Likert scaled responses were identified (Figure 2).

This question attracted a further 113 free text comments, indicating strong interest in the issue. Of these, only 1 comment spoke unequivocally against registration. Most comments elaborated on the possible benefits of registration such as increased public safety, not just from inadequately trained naturopaths and WHM practitioners but also other healthcare providers giving advice about CM but without training in CM. For example,

“Absolutely, a little information can do a lot of harm; just watch ‘A Current Affair’ or ‘Today Tonight’ to be reminded how it can go wrong. Therapists must be well trained and knowledgeable and be held accountable to ensure that the public is safe.”

Another major theme was the possibility that formal registration would increase practice standards, confidence and credibility of the profession and its broader integration into the healthcare system. For example:

“Not simply to safeguard the public but also to ensure that there is a uniform level of skills and knowledge amongst the various practitioners that can be relied upon and ongoing education being part of this registration.”

“... and to promote our credibility and value within the health promoting field of complementary medicine. Integration and promotion of health systems is my dream for the best for all concerned.”

A few comments agreed with the need for formal registration but did not agree that public safety was the main issue. For example:

“No - not to ‘safeguard the public’.... they are already safe in the hands of qualified practitioners, but to have recognition as valuable health care providers for the public to benefit [from] and the medical profession to collaborate [with].”

Nine comments suggested that being a member of a professional association was the same as registration so formal registration was not necessary and nine further comments expressed concern that non-CM healthcare professionals could regulate the professions if formal registration ensued.

Discussion

This national survey of naturopaths and WHM practitioners’ attitudes to evidence found the vast majority have embraced scientific evidence whilst maintaining the importance of traditional evidence, personal experience and patient reports and feedback. In regards to knowledge about clinically proven benefits or drug interactions with commonly used CMs, no differences in knowledge scores were found between younger graduates and more experienced practitioners or those that have achieved advanced diploma or bachelor degree education. Survey participants favour the use of professional CM specific resources, in particular textbooks. Importantly, this survey also indicates overwhelming

support for formal registration amongst practitioners. In particular, formal registration was perceived as a potential means of increasing public safety, professional practice and educational standards, public and professional confidence and credibility and integration within the broader healthcare system. This finding is timely in light of the [Australian](#) government's move to create a single national registration system for health professionals.

Compared to the workforce survey of naturopaths and [WHM practitioners](#) published in 2004 [2], the results from this survey suggests that the number of naturopaths/[WHM practitioners](#) with an undergraduate degree or higher qualification has increased in recent years. According to the previous survey [2], 34% of the workforce had attained a bachelor degree and 9% a higher qualification whereas this study identified 42% of practitioners had attained a bachelor degree and 21% a higher qualification.

The knowledge sections of the questionnaire provided an opportunity to measure naturopaths and WHM practitioners' knowledge of several popular over-the-counter [CMs](#). Previously we reported that recent pharmacy graduates performed significantly better in this knowledge quiz than their peers [14] however we did not find recent graduates in naturopathy or WHM performed differently to other [naturopathy/WHM](#) practitioners. It is possible that continuing education in the form of professional seminars may account for the lack of difference in scores between recent graduates and others; however this remains to be investigated further.

We have previously used the same knowledge quiz in a survey of Australian pharmacists [14]. When the results are compared, naturopaths and WHM practitioners scored [similarly to pharmacists in the section](#) evaluating knowledge of ['clinically proven benefits'](#). However, naturopaths [scored significantly higher than pharmacists in the 'clinically significant interaction' section and as a result, in the overall knowledge test](#). Whilst it is tempting to make conclusions about the knowledge and quality of education received by practitioners, these results must be viewed cautiously because only 80% of [naturopaths](#) attempted the knowledge section compared with 92% of pharmacists leaving

scope for responder bias. It is possible that those with less knowledge and confidence chose not to complete these questions.

Evidence in complementary medicine – closing the divide

Evidence based medicine (EBM) has not only revolutionised the practice of orthodox medicine, these results suggest it is influencing the practice of naturopathy and [WHM](#). In 2001, an article debating the acceptance of EBM within the CM professions indicated that whilst evidence based approaches were being embraced by some CM practitioners, others had substantive doubts about EBM and some were openly hostile [20]. More recently, Evans reported that in Australia, herbal literature, which focuses on phytochemistry and clinical trials, is replacing existing traditional herbal knowledge rather than being incorporated into it and expanding the knowledge base [21].

Naturopathic and WHM practice is unique amongst alternative therapies because practitioners are trained from a scientific perspective, which tends to be objective and reductionist, together with a holistic approach which is more subjective, intuitive and abstract [22]. This leads to an eclectic approach. Unlike the view expressed by Evans suggesting traditional herbal knowledge is being lost, our study found practitioners maintain a view that is informed by both science and tradition and continue to see traditional evidence as important.

In contrast to the tension reported amongst general practitioners who can feel that more value is placed on published research and less on clinical experience and intuitive insights [23], we found that naturopaths and WHM practitioners consider patient reports and personal experience as essential or important sources of information in addition to science. Similar findings were reported in a small qualitative study of Queensland naturopaths [24].

In the past, naturopathic and WHM practitioners with primarily scientific views were considered poles apart from those with primarily holistic world views [22] however over the last century, a transition has occurred whereby practitioners appear to be less polarised along this continuum and have an appreciation for the dual nature of naturopathic and WHM philosophy.

Surveys consistently report that people do not use CM as an alternative but rather as an adjunct to their conventional medical care [25]. The evolution of naturopathy and WHM education to enable graduates to appreciate scientific evidence is likely to be helpful in communicating with patients who also seek medical advice and use pharmaceutical medicines, hear about scientific ‘breakthroughs’ in natural medicine through the media and want safe and effective multi-disciplinary healthcare. The closing of the divide between traditionalist and scientific views may also be occurring in an effort towards legitimisation and formal acknowledgement of the professional status of naturopathy and WHM by the public, other health care professionals and the government. This is suggested by the overwhelming support of formal registration reported by our study participants who largely embrace both scientific and traditional evidence.

Registration

The program to create a single registration system for healthcare professionals in Australia began in 2006 and has started to become implemented across several professions such as pharmacy, medicine, [and traditional Chinese medicine](#). In the second round, a working party will deliberate on partially regulated professions and in the third and final round, the need to regulate unregulated health professions, such as naturopathy and WHM will be explored. The working party will make recommendations to the Australian health Ministers’ Advisory Council based on six criteria. Two of these criteria relate to public safety and evaluating whether the unregulated professions practice pose a significant risk to the public and whether existing regulatory mechanisms adequately address health and safety issues [26].

CMs, like all medicines, have the potential to cause adverse reactions and drug interactions. Reference texts and herbal pharmacopoeias give detailed information about adverse effects associated with CMs and pharmacovigilance systems collect thousands of adverse reaction reports each year [19;27;28]. A workforce survey of WHM practitioners identified a significant number of adverse reactions from the ingestion of herbal medicines prescribed by naturopaths and WHM practitioners [29]. In another national survey, 17% of CM practitioners reported an adverse reaction [30]. Reactions were

sufficiently severe in some instances to warrant referral to a medical practitioner. Whilst the risks associated with the use of CMs is apparent, the level of risk is considerably lower than for scheduled medicines and serious reactions requiring hospitalisation are rare [31].

Other risks involved with practice can be either risks of commission or omission [32]. Incorrect prescribing, failing to avoid drug interactions and negligent practice are examples of risks of commission whereas misdiagnosis, failing to advise patients about possible adverse effects or [to](#) refer to another healthcare practitioner when appropriate are risks of omission.

Quality education, knowledge of commonly used CMs and access to accurate resources are important steps towards improving public safety, however without adequate regulation there is nothing to prevent an untrained person without knowledge or adequate skills from practising naturopathy or WHM. The vast majority of naturopaths and WHM practitioners in this study support formal registration of their professions, in particular the more recent graduates.

Limitations

Like all studies, this one has limitations which influence extrapolation of the findings. Practitioners with an interest in the issues being explored are more likely to participate in a self-administered survey such as this and practitioners without internet access would not have been able to participate. Although study participation was open to all naturopaths and WHM practitioners, only those that received information about the study from their professional association, product supplier or colleagues were likely to participate. The survey tool was validated prior to availability however there is scope for questions to have been interpreted differently to that intended and the reduced rate of participation in the knowledge section could be a result of responder bias.

Despite these limitations, the sample size was sufficient to enable meaningful sub-group analyses and inter-group comparisons. These findings indicate further research opportunities to explore and compare practitioner attitudes to evidence, use of information in clinical decision making and attitudes to the legitimisation and professionalisation of the professions whilst exploring a role within the larger healthcare spectrum of professions.

Conclusion

We have established that naturopaths and WHM practitioners accept the importance of scientific evidence whilst maintaining the importance and use of traditional evidence, **personal experience and patient feedback and reports**. Respondents achieved higher knowledge scores than pharmacists on a similar test suggesting a good level of knowledge about drug interactions however responder bias may have influenced these results. When asked about [professional](#) registration, the vast majority of respondents were in favour, particularly more recent graduates and many provided comments elucidating why this move would be beneficial. The strong support for formal registration is a timely finding as the government heads towards evaluating the need for regulation of these professions.

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Conflict of interest statement

None of the authors have anything to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation.

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