

**The information-seeking needs and behaviours of
complementary health (chiropractic) practitioners
and students**

by

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Submitted to the School of Information Management,
Victoria University of Wellington
in partial fulfilment of the requirements for the degree of
Master of Library and Information Studies

February 2007

Acknowledgments

The author would like to acknowledge the assistance of the supervisors of this project, Dr Berenika Webster and Ms Brenda Chawner ; and also to thank the President of the New Zealand College of Chiropractic for his support. My thanks and apologies go to my family and friends who have supported me over the months that this project has been in preparation.

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Abstract

Background:

Research into the information-seeking behaviours and needs of alternative and complementary health professionals continues to be limited. Interest in complementary medicine is growing worldwide, reflected in New Zealand by the increase in numbers of practitioners, and the demand for accessible, reliable information and resources by professionals and consumers grows also.

Objectives:

The aim of this study was to examine the information seeking behaviours (access, sources, frequency of search, and motivation) and needs (research, practice or education) of students and professionals in one area of complementary health (chiropractic), and by investigating their reported practices and preferences identify their requirements, preferred approaches and any barriers that may limit their information-seeking. The intention is to use the information to assess a possible requirement for information services and information skills programmes for practitioners in the community and to add to the small body of research on information use among CAM professionals.

Methods:

The research project surveyed a random sample of both students and registered chiropractic practitioners by questionnaire and interview. The mailed questionnaire included twenty questions intended to elicit information on the information-seeking behaviours of the respondents, with interview questions expanding on these responses.

Results:

Although the response was very low at 41.1%, (a known risk in survey research), results indicated that the information needs and behaviours of chiropractic professionals is similar to that of other health professionals. Respondents used the Internet and books frequently, but were unlikely to use databases or a library when seeking information. Respondents were generally confident in their skills but often lacked confidence in the information they located.

Conclusions:

Although the chiropractic field is quite narrow in scope, chiropractors' information seeking needs and behaviours are similar to those of other health professionals. They seek information regularly and use a number of sources, primarily for clinical reasons and for personal interest. They do not search for research-based information frequently and rely on the Internet, colleagues and their own collections to supply their main information needs. Although the results cannot reliably be extrapolated to the whole chiropractic community owing to the small scale of the survey, it appears that there is need to encourage the use of research-based information and to provide easier access to those resources contained in databases and libraries. As the overwhelming majority of chiropractors of all levels of experience use the Internet, the investigation of the provision of targeted web-based services and training in their use may be profitable. More precise investigation is required.

The information-seeking needs and behaviours of complementary health (chiropractic) practitioners and students

OVERVIEW

Studies have been carried out on the information needs and seeking behaviours of members of many and various disciplines for many years; Leckie (1996) noted that the amount of research on physicians, for instance, far outweighed that on any other health care group. There are now a large number of studies that have been carried out on the needs and behaviours of mainstream health professionals within a range of specialities (Gardner, 1997; Dee, 2003; Andrews, 2005) and also of students and academics in academic institutions (Bates, 1996; Griffiths, 2005; Ocholla, 1996; Powell, 2003), but until recent years little research has been undertaken about information use or needs within the fields of complementary and alternative therapies and specifically for chiropractic (Jamison, 1990, 2002; Owen, 2003].

Research on information needs and behaviours in other areas of health practice has shown that health professionals have problems in keeping up to date; users' information skills, especially in an online environment, are often lacking, and needs are often not met, but that the usual forms of library services may not be seen by professionals as the best way to meet them. In this research, it is hoped to see if similar findings hold true for professionals in a complementary and alternative health field where practice parameters are not entirely dissimilar to mainstream medical practitioners, but the body of information and research is by no means as extensive or easy to locate. One intention of this piece of research is that user behaviour and needs can be investigated and evaluated in a comparatively homogenous environment, as the chiropractic community in New Zealand is still so small.

As practitioners outside the few educational establishments may not have formal access to professional sources of CAM information and research, that otherwise is not easily accessed,

it is hoped that this study may also provide a basis for an assessment of need for the provision of information resources and facilities to specialised practitioner populations whose access to resources may otherwise be limited. The NZCA Centennial Library, as the sole collective resource for chiropractic in New Zealand, for instance, for all these reasons, may need to become increasingly involved in the provision of necessary resources and for it to expand its scope to include graduates, practitioners and researchers from other disciplines; Crumley (2006) puts forward the view that “a CAM librarian’s role is unique”; many CAM librarians specialise in specific areas of CAM and their role in a CAM environment offers opportunities for internal and external partnerships.

CAM therapies in the health collective

The worldwide use of complementary and alternative medicine or therapies (CAM) in addition, or as an alternative, to conventional medicine is growing rapidly. Kelner (2006) suggests that the increase in chronic health problems is one reason for the increase in interest in alternative options for treatment of these conditions; a greater emphasis on holistic health, lifestyle changes and an increased continuity of care are put forward as further possibilities by MacLennan, Wilson and Taylor (2002).

The National Centre for Complementary and Alternative Medicine (a department of the National Institutes of Health in the United States) defines complementary and alternative medicine (CAM) as “a group of diverse medical and health care systems, practices, and products that are not presently considered to be part of conventional medicine”. (National Institutes of Health, 2006); the list of what is considered to be CAM changes continually, as those therapies that are proven to be safe and effective become adopted into conventional health care and as new approaches to health care emerge.

CAM therapies are generally termed Alternative therapies when they are used in place of conventional treatments and Complementary therapies when used together with conventional treatment and are regarded as falling into five general areas: alternative medical systems that are complete systems of therapy and practice; mind-body interventions; biologically based systems; energy therapies; and manipulative and body-based methods. In recent years, as therapies have become more commonplace and evidence for their use

increases, the term “integrative medicine” has also come into use, which describes “the combined practice of mainstream medical therapies and CAM therapies for which high quality scientific evidence of safety and effectiveness has been established” (National Institutes of Health, 2006). Kelner (2006) cites Coburn when he states that “expectations for freedom of choice in health care are putting pressure on the state to consider more inclusive policies for the formal system”.

Health practitioners and information seeking in research and practice

There is a long history of use of complementary and alternative therapies, but a very short history of research and information on and within the field, which is still weighted toward practitioner research. While scientific evidence exists regarding the efficacy of CAM therapies, for most there remain questions - such as to the long term safety of some therapies and how they work for the diseases or medical conditions for which they are used - that are still being investigated by the application of thorough scientific studies. This increasing research in CAM therapies deals with therapies’ efficacy, practice and developing relationships with mainstream medicine and practitioners, but little is described of the needs and information-seeking behaviours of CAM health practitioners and researchers when accessing information relating to their field, or of the accessing of professional information generally in the context of their research, practice and patients.

There has been some investigation, however, undertaken on the acquisition and use of health information by chiropractic professionals and chiropractic students (Jamison, 1990), but the limited number studies there are deal mostly with the area of chiropractic patients as health care information consumers and the information available or provided for them. For example, Jamison (2002) reports a study of the potential of the Internet as an information conduit between patient and provider, but leaves open the question of practitioner needs and skills in acquiring such information. Reasons for acquiring professional information range from fulfilling ethical and medico-legal responsibilities of accountability and improving patient care by keeping abreast of current literature to providing expertise to the non-health community, such as answering patient concerns; Rupert (1996) reports that while patients ask questions for many reasons, 18% are “directed

at seeking new health information from their professional provider". Although Wessell (2006) is describing the risk of direct harm to the public when he quotes Sternbrook as emphasising "the importance of responsible and comprehensive literature searching to protect the safety of human subjects participating in research studies", it raises the importance of being able to identify and retrieve the available and most appropriate literature for the specific need. Wessell (2006) also notes "many researchers conduct literature searches on their own, with little guidance on what constitutes an appropriate or sufficient literature search [to support human subject research]". Even for information intended for use in practice, to assimilate for patient information or continuing medical education it is important for professionals to have the skills to be able to evaluate and assess the type of information they acquire to be sure they have the most appropriate, accurate and best material for the need they have; the quality of information varies dramatically and it may be difficult for practitioners to differentiate between reliable and unreliable data; many practitioners "feel overwhelmed by new scientific information, are not good at finding new information and do not know how to evaluate it when it is found" (Smith, R.,1996).

It is also not evident how individual CAM practitioners perceive their need for information and how they fulfil this need if recognised; whether practices learned in education and training continue to be used and useful once graduates are practising in the community and what information networks, formal or informal, exist and can be used to assist them.

Research into the efficacy, delivery and practice of CAM therapies generally and chiropractic in particular is developing and increasing, undertaken by academics and practitioners within and without the field, in part driven by the increase in focus on evidence-based medicine, but also encouraged by the increasing interest from consumers in safe and natural therapies. Health-related information seeking by the public generally has expanded rapidly with the increasing interest of patients in their own health care; more health-related information increases the need for providers and researchers to stay abreast of it, and "a greater degree of attention is being devoted to how people actually use (or do not use) medical information" (Case, 242).

Although the amount and quality of research carried out in CAM areas is increasing and the numbers of reliable sources, such as peer-reviewed journals, are also expanding, it can often still be difficult to locate and access information on the nature and practice of these therapies as many CAM resources remain in the grey literature. The Ministerial Advisory Committee on CAM (2004) comments that “some research is carried out by practitioners and professional bodies, but there is no systematic way of accessing these research efforts assessing the contribution of complementary and alternative medicine, unlike universities’ requirements to lodge post-graduate research in university libraries”.

Owen and Fang (2003) surveyed health professionals seeking CAM information, finding that they have major difficulties in locating material in mainstream biomedical literature and that “core databases such as MEDLINE do not index many journals relevant to CAM practitioners”, and this lack of indexing has historical foundations; as an example, Rupert (1996) notes that Index Medicus (the precursor to PubMed/Medline) contained only 228 references to chiropractic between 1876 to 1960, all in medical journals.

Resources such as the NCCAM information websites are directed toward both professionals and consumers, and although online databases such as AMED (Allied and Complementary Medicine Database), ICL (Index to Chiropractic Literature) and HealthIndex (MANTIS) are available either through open access or by personal subscription, locating and gaining access to the journals and documents they index may not be straightforward. Quality also can be perceived as a problem when searching for information even in recognised sources; AltHealthWatch is directed toward consumers and contains full text, but is “mostly in brochure format and not based upon evidence. Having access to poor quality resources is not imperative” [regardless of the lack of CAM information] (Crumley , 2006), This potential difficulty in acquiring documents when searching for information resources is emphasised by Leckie (1996) as the biggest problem reported by nurses in their information seeking process.

Studies of medical practitioners show that overall their practitioner information needs centre on supporting patient care, patient information, collegial exchanges (including such facilities as journal clubs) and research. Andrews (2005), investigating a practice-based research network, also addressed the problem of geographical isolation, finding that while access to

information for rural practitioners can be an additional barrier, needs and behaviours and preferences are otherwise similar. Information overload is seen as a key barrier and, in response, users are looking more frequently to compiled resources that can be accessed remotely.

As CAM practitioners, and chiropractors in particular, draw on much of the same information and research that is used by other health professionals, literature available on the information seeking needs, behaviours and practices of professionals in other, related, health disciplines could be assumed to be applicable or comparable to the information behaviour of CAM users. It may be reasonably assumed therefore that the needs and behaviours in information seeking of students and professionals in alternative and complementary health fields would be the same or similar to those of mainstream medical practitioners.

For all these reasons, it could become increasingly time for CAM libraries and librarians to expand their scope to include graduates, practitioners and also researchers from other disciplines, or to be part of a network for doing so, and for this reason a knowledge of CAM professionals' views on their requirements and skills in seeking and using information for their professional development and the betterment of practice would be of interest.

The context of Chiropractic

"Chiropractic is a primary healthcare profession concerned with the relationship between structure (primarily of the spine) and function (primarily of the nervous system), as that relationship may affect the restoration, preservation and promotion of health and well-being. Chiropractic principles recognise the inherent recuperative power of the body.

Essential to the practice of Chiropractic are:

- the assessment of conditions related to the spine, non-spinal articulations and the neuromusculoskeletal system;
- the diagnosis, prevention, rehabilitation, management of and education about those conditions." (N.Z Chiropractic Board, 2006)

Chiropractic as a therapy had its beginnings in the late 1800s in the state of Iowa, USA, following the observation by Daniel D. Palmer of improved hearing in janitor Harvey Lillard after the first chiropractic treatments of spinal manipulation therapy.

Now widely recognised as a manual therapy worldwide, chiropractic's use is growing rapidly in New Zealand, and is increasingly seen as a credible component of the primary health care system, with the potential for making a significant contribution to achieving the New Zealand government's health strategy. A survey in 2004 of 12,000 consumers showed that 23.4% of respondents used alternative or complementary therapies, with chiropractic as the second most accessed therapy with 6.1% of consumers (Ministerial Advisory Committee on Complementary and Alternative Health, 2004)

In 1910, Mr Thomas Giles returned to New Zealand from Ireland so impressed with the work of his Belfast chiropractor that he went on to study in the United States of America (then the only country offering chiropractic training) to become the first formally trained chiropractor to practice in New Zealand. The first woman chiropractor in New Zealand, Miss Freda Duggan, graduated from Palmer College, Davenport, Iowa, in 1928, and also commenced practice in Dunedin. Interestingly, notwithstanding that city's early introduction to chiropractic services, and a current population of over 120,000, only three chiropractors have set up practice in Dunedin. By 1920 practitioner numbers had grown enough for the New Zealand Chiropractors' Association, still the only professional body for chiropractors in New Zealand, to be incorporated. Today, slightly more than 70% of registered chiropractors belong to this body.

Although having an early introduction into New Zealand, Chiropractic, until comparatively recent years, has had only very small numbers of chiropractic practitioners very widely scattered over the country, except for some concentration of practices in Auckland and to a lesser degree, Wellington. A survey of the profession in 2001 showed 61% of practitioners indicated a need for more chiropractors in their area to meet patient demand.

Education

A consequence of the increasing interest in and growth of complementary health systems is that the number of practitioners of these therapies is growing rapidly also. Most therapies now have formal education systems for the acquisition of qualifications in the skills and knowledge appropriate to the field, and in New Zealand a number of CAM therapies have, in recent years, established educational training organisations in this country who formerly would have had practitioners trained only overseas. Many countries have registration systems providing official recognition and approvals, which usually oblige practitioners to continue education in their field, whether as formal education programmes or as documented evidence of personal professional development or research.

While several states of the U.S. instituted formal registration of chiropractic practitioners in the 1950s and earlier (although it took until 1974 for the final State to licence chiropractors), New Zealand was the first country in the world to institute registration of chiropractic professionals with the passing of the Chiropractors Act in 1960. This Act was superseded first by the Chiropractors Act 1982, that covered in great detail the responsibilities of the Chiropractic Board, including registration of chiropractors, encouraging high standards of professional education and the discipline of registered chiropractors, and latterly by the HPCA (Health Practitioners Competency Assurance) Act that came into effect in 2004. This legislation covers all health care providers, and was instituted with the intention of raising the competency of health care services delivered – including chiropractic. Chiropractors, and, since the application of the HPCA Act, osteopaths, remain the only CAM practitioners statutorily registered in New Zealand.

The three main chiropractic bodies in New Zealand, the Chiropractic Registration Board, the New Zealand Chiropractors' Association and the New Zealand College of Chiropractic have a particular interest in establishing their constituents' information needs and modes and preference of access in reference to the potential use of information technologies, access to types of resources, including libraries, actual and potential barriers to that access, and information resource usage patterns (particularly for education). Students and practitioners therefore need ideally to establish and maintain a degree of information literacy adequate to enable them to source, access, assess and process the

information required to maintain professional standards and provide appropriate information to their patients and to the general public.

There are many chiropractic teaching institutions in the United States and Europe, and programmes are taught in four Australian universities, but there is one programme only in New Zealand, provided by the New Zealand College of Chiropractic, a small, private, non-profit tertiary institution offering a four-year degree programme incorporating 2 years of clinical practice. While Rupert (1992) has in the past criticised chiropractic education institutions for placing little or no emphasis on advancing the chiropractic knowledge base by initiating research, and not teaching literacy skills for information retrieval and critical reading, Keating (1992) sees the chiropractic colleges (as an group entity) as the “single most important forum for scholarly growth”, a statement echoed by the Ministerial Advisory Committee (2004) when commenting on the requirements for research in universities. Given the limited time in which scholarly research has been undertaken in CAM and chiropractic fields and the need to access the best available evidence, Keating (1992) sees this as most important in the goal of training chiropractors as critical thinkers, to make reasoned decisions among sometimes less than ideal information and in assimilating chiropractic data as it becomes available in the literature. This indicates the need for skills in information literacy that can be carried into practice.

The number of practising chiropractors in New Zealand is currently still small compared to other more mainstream fields of manual and manipulative therapies, such as physiotherapy, as is the number of practitioners in most other fields of complementary therapy. Chiropractic graduate numbers are small and immigrating practitioners have a number of qualifying examinations to pass before application for registration, and not all remain to practice long term in the country of registration.

This “importation” of practitioners coupled with the number of graduates who return to their home countries, or who go overseas for wider experience, can mean that established networks for information gathering and exchange are broken and may be difficult to re-establish. While a professional organization exists in the form of the New Zealand Chiropractors Association (NZCA) who, together with the College, organise conferences, seminars and other collegial opportunities, until recent years most opportunities for

continuing education, collegial contact and collegial opportunities have been primarily available outside New Zealand, principally in Australia and the United States, although there is some divergence in practice between these countries. Not all practitioners belong to the Association or are in contact with the College, and though the increasing availability and use of the internet and email for electronic communication may now be reducing this, in the past, the lack of any central resource for chiropractic information sources, and only limited local access to sources of specifically chiropractic literature available (through the Library and the New Zealand Chiropractic Association) has meant that practitioners needed to rely on their own resources and skills for access to current practice information and research in health, CAM and chiropractic fields. Skills, opportunities for access and the inclination to seek information will vary widely among practitioners; it has been suggested that chiropractors in the past have not subscribed to scientific literature and not learned how to access and critically evaluate current reliable information; if reading was done, it was generally from the large volume freely available literature such as magazines and newsletters (Rupert, 1996). An increase in quality research journals in chiropractic (21 peer-reviewed titles in 2006) and reliable indexing of material in the field done by librarians in a consortium of U.S. Colleges is partly due to leaders in the field now recognising the need for ongoing research using widely accepted methods to validate the efficacy of the therapies (Kelner, 2006), though there are proportionally still few experienced chiropractors engaging in research.

The New Zealand College of Chiropractic

In 1994, the New Zealand Chiropractors' Association (NZCA) formally instituted the New Zealand College of Chiropractic (originally as the New Zealand School of Chiropractic), as one way of meeting the demand created by the shortage of chiropractors, and was developed on a model of maintaining the philosophical integrity of chiropractic. As the sole institution in New Zealand it offered, and offers, an educational programme to prepare graduates for registration as chiropractors, and is one of the 5 institutions in Australasia offering a first professional degree for education in chiropractic. Until the establishment of the New Zealand college, all New Zealand chiropractors were obliged to study overseas, and

upon return had no formal or institutional channel for continuing education in chiropractic education or information access support within the country; the College's unique position at this time enables it to make a significant contribution to the ongoing development of the chiropractic profession in New Zealand.

As the sole collective resource for chiropractic in New Zealand, the NZCA's small reference library became the kernel of the College's Library, which in 1995 became the NZCA Centennial Library to mark both the Association's support and the centenary of Chiropractic itself. For the first several years of the College, the library has been able to support only the learning and research needs of the students and academic staff of the College; in 2006, an online catalogue was made available on the College's website. Students have password access to three databases (Index to Chiropractic Literature, MANTIS and EPIC) and open access to others databases (Cochrane, PubMed, and BioMed Central; members of the NZCA currently are able to use library resources in person or request literature searches, but not borrow.

A common thread in many of the published research studies is the lack of skills demonstrated by both students and practitioners in identifying the type of information needed, sources and location of information. Andrews (2005) emphasises the importance of motivational factors in improving clinicians' competence in information acquisition, and notes licensure and certification requirements as one driving factor.

The Health Practitioners' Competency Assurance Act 2003 that became operational in September 2004, "provides the [Chiropractic Board] with mechanisms to ensure that practitioners are competent and fit to practise, not just at the point of registration but on an ongoing basis. Recertification through the issue of an Annual Practising Certificate (APC) is the main method that the Board uses for ensuring practitioners' competence to practise. Accordingly, practitioners who apply for an APC have to meet certain minimum requirements, in particular undertaking continuing professional development, maintaining regular peer contact and meeting certain required practice standards. It is also likely that structured further education requirements will be introduced over those required for continuing registration" (*Health Practitioners Competency Assurance Act (2003)*), to aid in ensuring the maintenance of practice standards and the demonstration of minimum levels of

professional competence, as well as the expectation that members of the profession will continue to educate their patients and the public generally in the maintenance of good health.

To fulfil these CPE (continuing professional education) requirements, professionals will need the knowledge of appropriate information sources and have competent skills to retrieve the information they will require; how chiropractic professionals perceive their own success in these areas is one aspect of this research.

Health information and Libraries

Common threads evident in previous information-seeking studies in medical and other professional fields have centred on the type of resources used by information seekers, barriers to access and developing seeking skills, the need for planned and continuing education for professionals in information - seeking and information literacy skills, and the role libraries are able to play as moderators and training agents in this process through collaboration. Recommendations and avenues for further investigation again fell into definite areas: the design and development of electronic resources and infrastructures as an information and educational resource; collection development, including the provision of “portals” for combining access; and training programmes, which also could be collaborative.

Access to information outside organised courses, for professions that are narrowly subject focussed and have limited access to the organised collections of resources, that, for instance, hospital –based professionals generally do, may be difficult both to locate and to make use of, but libraries can no longer assume they are the primary resource for information seekers in the health community.

The use of libraries by health professionals varies widely, although the use of libraries is not always seen as a primary source of information for practitioners outside the research or educational situations. Lee (2005) investigated the concept and function of collections in information-seeking in social- and natural science disciplines; his review shows that there is little understanding of how collections may, or do, help users in their search for information. Users’ concepts of library collections is frequently still centred on “bricks and books” and focussed mostly on access and use, and was not seen as modifiable to individual need;

Bellman (2006) reported that though physicians that used libraries were “highly satisfied”, even of those physicians working in a facility with an on-site library many would report its location as “inconvenient”, implying that even a short distance may be a barrier to use, and that most physicians would prefer to be able to access services remotely.

Resources and access

A small-scale study carried out on the information-seeking behaviour of clinical nurses and nursing students (Dee and Stanley, 2005) showed that nurses relied more heavily on colleagues and books in office collections, while students used online material more frequently. Of concern was the finding that both groups often did not know what resources were available to them, even of free access health databases, and did not make use of librarians’ expertise.

Resources such as electronic databases, however, are still expensive, even to institutions, and optimum use is necessary to justify their cost. Ur Rehman and Ramzy (2004) surveyed health professionals to look at under-utilisation of these resources, particularly in regard to awareness of availability and skill levels in accessing them. Respondents were questioned also on their reasons for visiting a library. Their conclusions showed that the majority actively used library services, but again, time, lack of skills and ignorance of any but the most obvious electronic resource appeared as reasons for under use; for instance, the National Library of Medicine’s web-based Medline through PubMed is the only database consistently recognised. Lee (2005) reports that online and instant access (unmediated) is preferred and electronic material available through a library’s online catalogue (OPAC) is not thought of as being part of a library’s collection. Gardner (1997) had already raised issues in information retrieval (his term) and patient care from the practitioner’s point of view, identifying the same concerns of access, overload and retrieval systems; his reference to past use of medical librarians highlights a problem of “cognitive isolation” from the practitioner.

Practitioners also identified their lack of skills as a barrier; Andrews (2005) suggests that health sciences librarians, perhaps as part of an outreach programme, provide individualised training; however, an appraisal of the training of health professionals in health

database retrieval skills in teaching hospitals and medical schools conducted by Garg and Turtle (2003) showed no clear evidence of lasting effect on professionals' skills. Garg and Turtle also make particular note of the lack of research evidence in this area.

Users emphasised, however, that a library had an important role to play in maintaining current awareness and information education. A survey of occupational therapy graduates conducted by Powell and Case-Smith (2003) sought to discover whether they continued to use the information-seeking skills learned during their study in the clinical setting and noted graduates' belief that while they had benefited from instruction, conditions in the "real world" did not allow them to be applied in the same way as for study or research; simpler and easier methods were needed. Jarvelin and Ingwersen (2004) expressed this view also in their study on context in information seeking, when they reported that users view information seeking and retrieval as part of another process, not as a goal in itself, and want to complete it quickly.

PURPOSE OF THE STUDY

The overall intent of this study is to gain an initial understanding of how one sector of CAM (chiropractic) practitioners in New Zealand access information. The main objectives are 1) to describe some aspects of chiropractic professionals' information –seeking methods and sources, and any barriers they may find; 2) to explore practitioners' and students' reasons for seeking information, which forms of access they use, how they perceive their information skills and how they use what they find, and 3) to review the relative importance of the different types and sources of information and the search characteristics as factors in influencing professionals' preferences and skills in information access, as an initial attempt to begin "filling in the gap" in researching use of and access to information in one profession of a health area currently developing in evidence-based practice.

The questionnaire and related interview questions were constructed to answer the following questions:

- why do chiropractic practitioners and students seek information and for what purpose?
- are the methods and sources for locating information used in pre-qualification study similar to those used in practice surroundings?
- does the choice of, and use of, resources change over time in practice?
- where do practitioners and students look for the information they need and why do they choose these sources?
- how confident are practitioners and students that they have the best information for a particular need, and that their skills are adequate for them to be able to find the best information?
- are the information seeking behaviours and needs of chiropractors comparable to the reported needs and behaviours of other health professionals?

METHOD

A small-scale cross-sectional descriptive study using both quantitative and qualitative forms of data was designed, as potentially providing the most effective means of assessment for the project as the number of chiropractors and students in New Zealand is quite small; 286 chiropractors are currently registered and practice in New Zealand, and the number of students studying at the New Zealand College of Chiropractic was 135 in 2006.

A review of the literature has shown that similar methods of inquiry (survey questionnaire, or questionnaire plus group studies) have been used in a number of medical and academic information-seeking studies, producing reasonable success in identifying comparable behaviours and identifying participants' intent and reasoning when searching for information (Ocholla, 1996; Owen, 2003; Griffiths, 2005; Cullen, 2002; Dee, 2005). In a study of information practice and use among nursing students and nurse practitioners, Dee

(2005) combined a questionnaire for demographics, resource use and frequency, with individual interviews and observation for searching behaviours.

Practitioner participants:

The research participants for the purpose of this study were drawn from the list of registered chiropractors maintained by the Chiropractic Registration Board, and which is publicly available on the Board's website. This list gives names addresses and registration status (that is, date of first registration in New Zealand, whether the practitioner is currently registered and whether they are practising in New Zealand or overseas – some practitioners maintain registration in more than one country), but does not provide more detailed information such as email addresses. Practitioners listed in the registry but not currently practising in New Zealand were not considered eligible for this survey. One practitioner respondent identified himself as "semi-retired", but is still practising, so this questionnaire was retained as a valid response.

Student participants:

A further group was drawn from the student population of the New Zealand College of Chiropractic, distributed by haphazard sample to students in two classes at the college. Numbers in the classes are low (33 and 20 respectively for the second year and fourth year classes), so random number sampling would provide no benefit, and all students are known to the researcher to some degree; however questionnaires were anonymous and returned anonymously through the internal mail system.

Permission had been obtained from the President of the College to approach students about participation in the project, and students in their second and fourth (final) years of the programme were included in the survey. The reason for this choice is that a) second year students have completed basic science and basic health courses and have some experience of alternative modalities (wellness focus, therapy techniques) and b) as fourth year students are involved in clinical practice, basic research and professional practice; their focus, while still mainly academic, is approaching the professional.

Survey size

In order to create a manageable but representative dataset, a simple random-sampling method of assigning a running number to each practitioner in the Chiropractic Registration Board list of registered chiropractors and selecting through random number from a table generated in Microsoft Excel were used to select a sample of 100 respondents.

A stratified sample was originally considered, but decided against for a number of reasons, notably the small size of the community, its homogeneity and that registration date would not necessarily be representative of practising years, as practitioners may have been previously practising overseas. Creative Research Systems' Survey Size Calculator was initially used to calculate the sample size needed to obtain results reflecting the target population precisely.

A sample size based on the number of practising chiropractors and with a confidence level of 95%, and a confidence interval of 5 was calculated to require a response of 164 practitioners, which, for an estimated 50% response rate would mean surveying the entire population. As no funding or administrative support was available, a sample size of 100 practitioners and 24 students was decided to be both representative and manageable, and to minimise non-response bias, assuming a response rate of 70%.

Data collection

Questionnaire design

The questionnaire (Appendix 1) was developed using both original questions and comparable questions adapted from previous studies. Questions included a combination of, list and category questions for demographic information, use of resources and frequencies, and Likert-scale type responses to indicate strength of agreement to questions. The majority of questions were designed for "closed" responses as being straightforward to answer and analyse, and better if respondents' motivation is low; conversely, they may not reflect completely the respondent's thoughts. Care also was taken not to "load" questions, reduced by the use of the Likert-type scale.

Questions relate to the type of access to, use of and awareness of information sources and media, skills (real and perceived, or lack of), and include the basic demographics of respondent status and length of time in practice.

Phraseology and format were taken into account when considering the design of the questions and the questionnaire; a checklist by Aday (1996, p.264) was used to check formatting of the questionnaire for clarity, comprehensiveness and order.

Pilot study

The first questionnaire comprised 14 questions, and a pilot test of four students and four practitioners was carried out to test the appropriateness of the method and correlation with responses. It was not administered using random methods for participant choice, although the participants match the main body of respondents, but were selected from individuals known to the researcher and local practitioners, and so incorporate a known sampling bias. The pilot was intended to demonstrate that the questions were appropriately phrased and comprehensible to the respondents, that no unintentional instrumentation bias had been introduced, and developing response depth via the group interview was anticipated to reduce the possibility of response bias.

When the pilot survey was complete, some major changes were made to the questionnaire for reasons of clarity and definition; seven questions were added, one was dropped and the type of phrasing in the question or of the response required was modified in three.

The deleted question concerned gender; the option to select for gender responses to questions was originally considered, as some studies show that areas such as Internet use may be affected by gender (Eberhart-Phillips, 2000; Cullen, 2002). However, as the chiropractic community is heavily weighted towards male practitioners and given the small size of the overall population, it was decided that this would achieve little in measurable terms.

Comments from respondents mainly dealt with the clarity of the questions and some confusion as to how they should be answered, but one of the added questions (What is considered enough information, or why did respondents stop searching) was added in response to a comment by one of the respondents.

These major changes meant that these responses could not be included in the main survey.

The final form of the questionnaire (Appendix 1) comprises twenty questions, grouped into four areas: information required and frequency; type of sources and resources used; use made of an evaluation of resources; and basic demographics.

Group Discussion/ Interviews

It was originally intended to follow up the questionnaire with small group discussions to develop questions in more depth and expand on responses to the first part of the questionnaire, and to record the interviews for later analysis. Selection was intended to be by self-selection (indicating willingness to take part by checking a box on the questionnaire sheet, and providing a telephone number or email address. and volunteers geographically close (within greater Auckland or the Waikato) would be approached for the interviews. As the available population for the survey is small, it was recognised that this self-selection could result in some bias as the randomisation is reduced, reducing ability to generalise to the entire population; however, as the number of chiropractors in greater Auckland is roughly equal to the number in the rest of the country combined, it is unlikely that any major distortion would be introduced.

The smaller than expected response to the questionnaire overall, however, and the limited number of respondents that indicated willingness to take part, required that a different approach be taken for this part of the investigation. It was decided to use individual interview, covering the same initial questions for the group discussions, intended to provide in-depth information to explain and expand on their responses to the questionnaire. This individual approach while useful is unlikely to produce as wide-ranging and extensive discussion as the group approach.

Process

In late 2006, a questionnaire, together with a cover letter explaining the project and a postage-paid envelope for return, was sent by post to 100 of the 286 currently registered chiropractors in New Zealand, and distributed to 24 students in the two classes by the College internal system.

Respondents were not identified, but for ease of confirming response or non-response and the ease of follow up on questionnaires, return envelopes were assigned the random reference number. Those returned were crossed off the number list and discarded; the

remaining numbers were used to identify those requiring follow-up contact, then were discarded.

A section was included at the end of the questionnaire form for respondents to volunteer for interview, or to request a summary of the research when completed. Where this was filled in, the section was removed on receipt and kept separately.

Response

None of the surveys was returned undelivered, so it is assumed all those sent a survey received it. 32 practitioner and 12 student surveys were returned within the first three weeks; following a reminder postcard after 28 days, a further 7 practitioner surveys were received, and no student surveys.

This is a response rate of 41.1% based on the 124 questionnaires originally distributed. The response rate for surveys in the health literature is known to be extremely variable; in the literature reviewed for this project, response rates ranged from a low of 35% recorded by Smith, (2005) to a high of 80.9% (Cullen, 2002). This appears to be the case whether surveys are conducted by mail or by email, although Owen and Fang (2003) note that when 295 faculty members were surveyed and given the options of a web-based questionnaire or returning an email attachment by mail, by far the majority responded online (141 responses against 7 by mail). This was still only a 41% response. Case (2002) describes an earlier survey as obtaining an initial response of 26%; multiple reminders resulted in a "good" result of 56% return.

In a mail survey, Aday (1996, p285) describes the Dillman total survey design when she recommends four mailings, one to two weeks apart to maximise returns: an advance notice letter, secondly, the questionnaire and cover letter with post-paid return envelope; a follow-up postcard with thanks or reminder; and a final reminder. For reasons of cost and time, this was not possible. Similarly, no incentives were offered to complete the questionnaire, although this also is common. Opinion is split on whether this may or may not set precedents for expectations.

The request for voluntary participation in small focus groups met with a very limited response, exacerbated by the small return. The four chiropractors who did indicate a willingness to take part were geographically diverse from each other, so a group discussion

would be possible only through audio conferencing. Consequently, this part of the information gathering had to be changed to individual interview, using the same set of topics and initial questions, in one case face-to face, for the other three participants by telephone interview. Consent forms concerning the interview process and treatment of notes were sent to these participants and returned signed by post or fax. Recording interviews was not possible, so detailed notes were taken and read back to the interviewee at the end of the interview to make sure that the notes reflected the actual intent of the respondent.

Returned questionnaires, interview notes and consent forms will be kept confidential, and destroyed after the requisite number of years (two) have passed.

Data recording

Recording of data was done progressively as questionnaires were returned., and was entered into a Microsoft Excel spreadsheet.

In several of the questions, respondents were asked to respond with more than one answer, so the total number of answers adds up to more than the number of respondents. Questions in this format asked respondents to rank answers in some cases and in others to select among a number of choices, with the ability to choose more than one.

Interview questions were intended to elicit similar information either in more detail or to confirm intent; questions referred to information level, reliability of information, skill level, specific information interests and type of journal use.

Alignment of the questionnaire and interview responses was carried out and where appropriate, responses were combined in the listing of the data, which again accounts for the number of responses exceeding respondents where answers fell into more than one category. This process was trialled also during the pilot phase once responses were examined, and the process and correlation was checked by another person and found to be straightforward. Those responses that were elucidatory or commentary were used to describe the responses to the questionnaire.

Data analysis

Measurement Matrix

Question	Concept	Level of measurement	Objective
1	Factors influencing information search: frequency	Interval	1,2,3
2-3	Factors influencing information search: rationale	Nominal	1,2,3
4	Factors influencing information search: type of information	Nominal	1,2,3
5	Factors influencing information search: source	Nominal	1,2,3
6	Factors influencing information search: success rate	Ordinal	1,2,3
7	Factors influencing information search: difficulty	Nominal	1,2,3
8-9	Factors influencing information search: review	Ordinal	1,2,3
10	Information sources- identification	Nominal	1,2,3
11	Information sources- frequency	Ordinal	1,2,3
12	Information sources- rationale	Nominal	1,2,3
13	Information sources- type- print	Nominal	1,2,3
14-15	Information sources- type-online	Nominal	1,2,3
16	Information sources- type –online- barriers	Nominal	1,2,3
17	Information sources- confidence	Nominal	1,2,3
18	Information sources- evaluation	Ordinal	1,2,3
20	Respondent characteristics	Interval	2

Results were analysed manually initially, and using Microsoft Excel Analysis Pak. Basic univariate statistics such as frequency distribution and mean have been calculated to describe each section of data; chi-square analysis has been used in correlating areas such as the number of years in practice and use of resources and other patterns of use. Due to the small sample size, statistical results are not significant enough to be extrapolated reliably to the larger population.

Presentation of results is either graphical or tabular, with explanatory text. For a description of the codes used in analysis of each question, refer to Appendix 2; descriptive statistics are calculated using these codes.

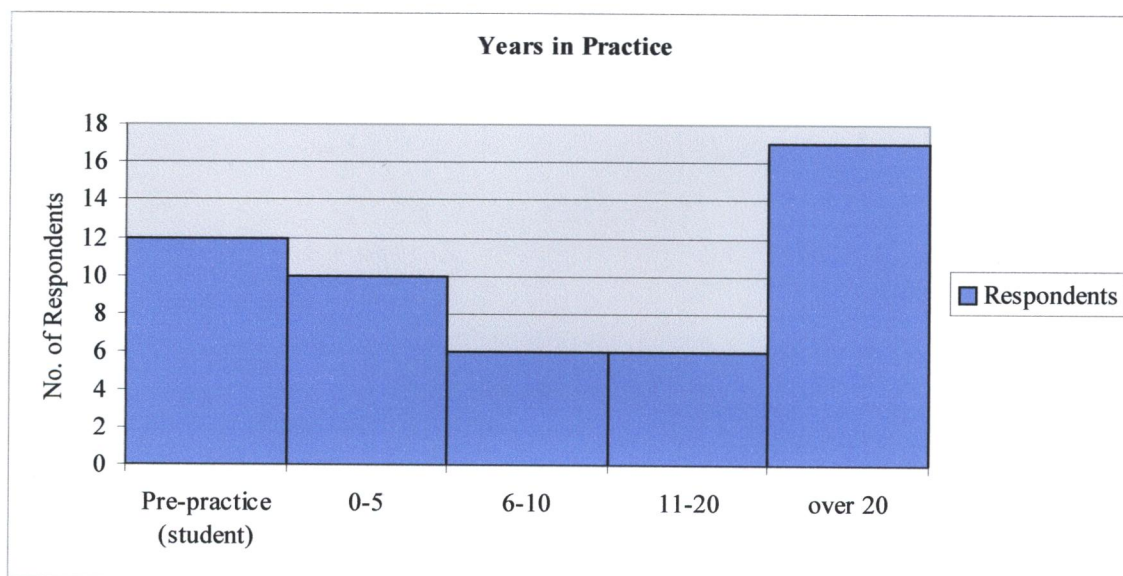
RESULTS

Demographics:

12 students and 39 practitioners returned questionnaires and 4 practitioners were interviewed to expand responses. Practitioners were grouped in 4 groups according to years in practice, P1, P2, P3 and P4 for purposes of comparison.

The status (student or practitioner) and the years in practice of the respondents are shown in Figure 1, Years in Practice. The highest number of responses was from those practitioners with more than twenty years in practice (n=17, 42%) but the combined total of respondents in the lower practitioner categories (0-20 years) is slightly larger (n= 22, 58%); this reflects the age of the population of practising chiropractors in the community, where the percentage of practising chiropractors 45 and over and over is reported as 41.7% (n= 93) and the percentage of those under 45 as 58.6% (n=132) The age statistics are reported in the Chiropractic Workforce annual survey (2005) carried out by the New Zealand Health Information Service.

Figure 1: Frequency distribution of practice age of chiropractors in the profession. N = 51



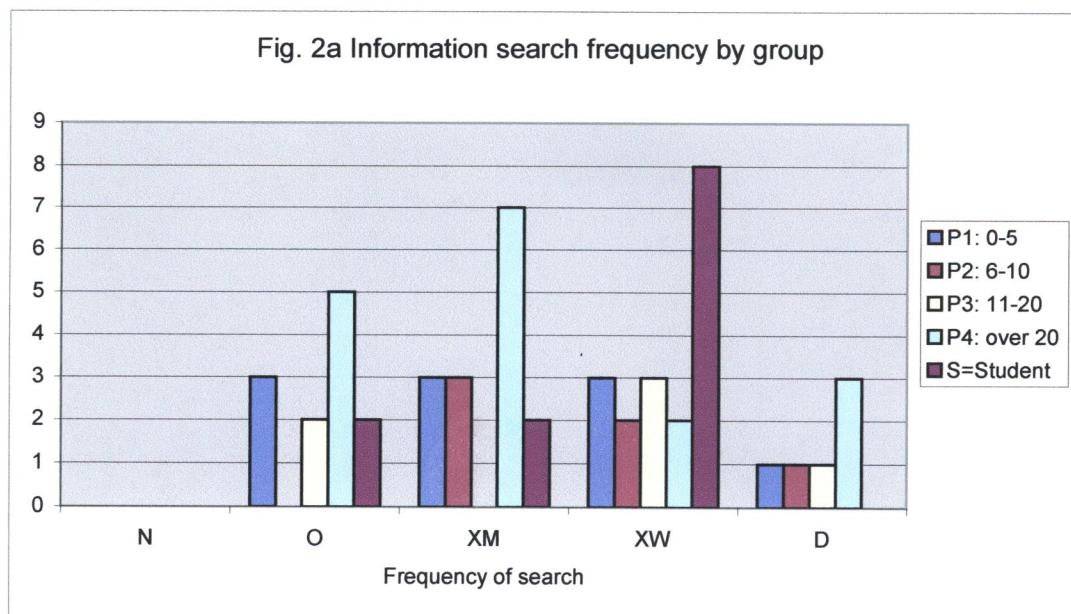
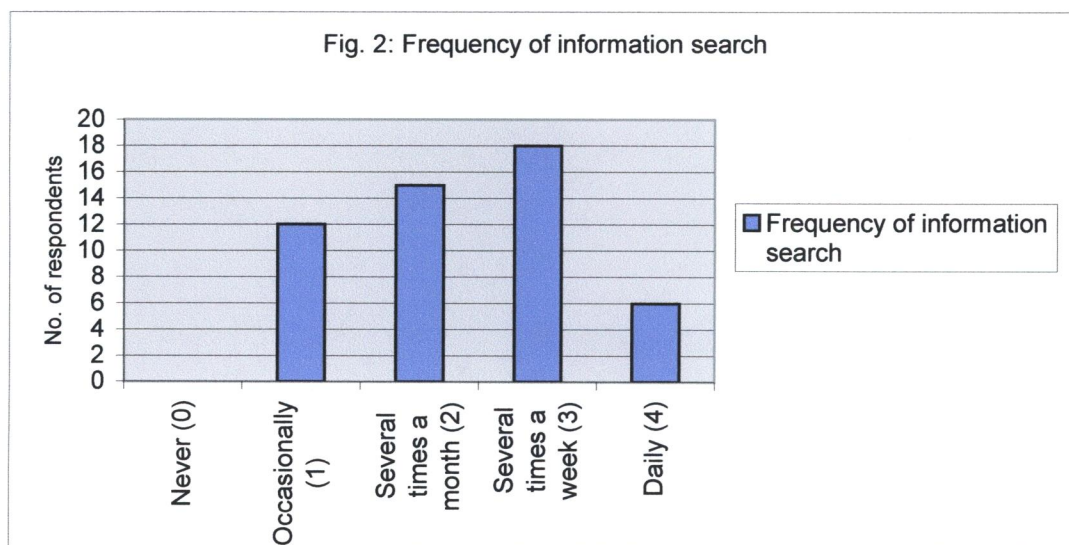
Search initiation:

Respondents were asked to report on how often they made a search for health information, what the initiating events were, and the reasons they searched for this information.

Frequency of Information Search (Figure 2):

Respondents were asked to choose from 5 options for frequency of looking for health, or chiropractic information; daily, several times a week, several times a month, occasionally or never. The responses ranged through “occasionally” to “daily” but no respondent reported never making a deliberate search for information.

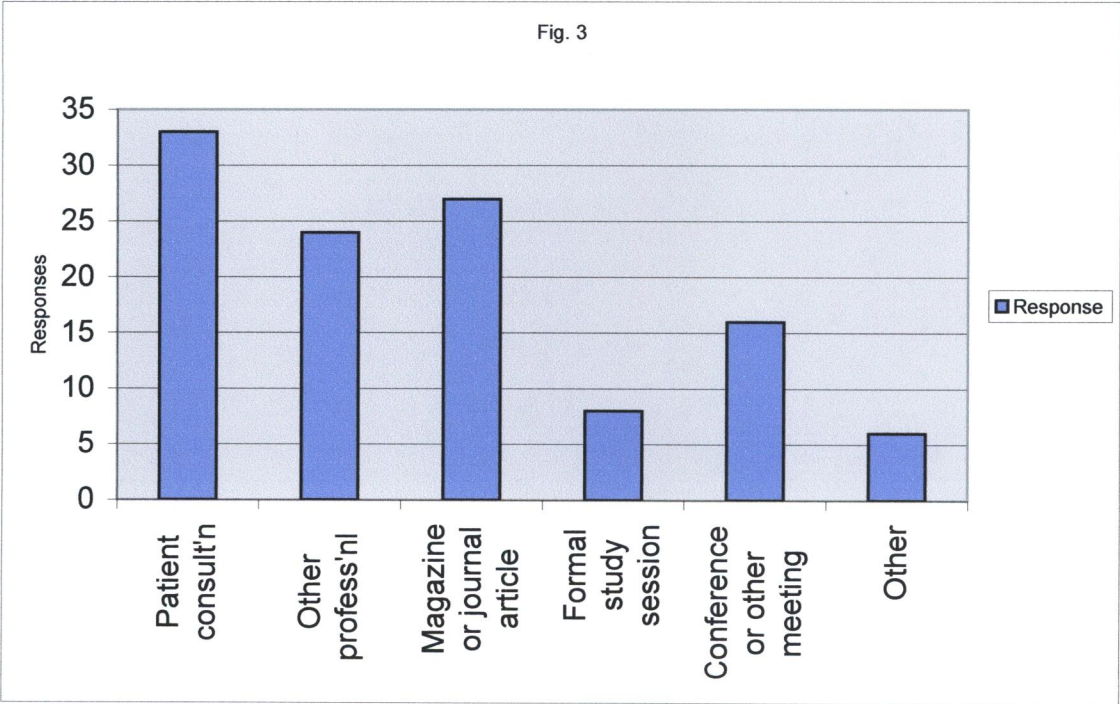
N = 51. Mean: 2.35, Standard Deviation: 0.97; Median: 2, Mode: 3



The mean frequency of search falls between several times a month and several times a week, while students search most often at several times a week. At least one practitioner from each group reported searching daily, while no student reported doing this.

Figure. 3: Initial motivation for an information search:

Respondents were asked to indicate what provided the initial instigation or driver for an information search, and were invited to make more than one response if they wished. Patient consultation was clearly the prime single motivator, while the mean fell between discussion with other professionals or material seen in journals and magazines. The distribution is slightly skewed, but mean and median are quite similar. N= 114; Mean = 2.59; Standard dev. = 1.46; Median = 2; Mode = 1.



All practitioners in the 6-10 years of practice band designated patient consultation as a motivator, 88% of practitioners with over 20 years in practice, 60% of practitioners with up to five years experience and only 50% of practitioners in the 11-20 years group. Written explanation in the “Other” option, and added comments from interviews elicited that “Formal study” included research, exams and homework; that an information search may be

prompted by a specific question by friends or family (not included in “Patient consultation”) or in one case, by a community discussion; and two respondents noted that a search may be initiated for general awareness or personal interest sparked by newspapers or other media.

Figure 3a shows response by group.

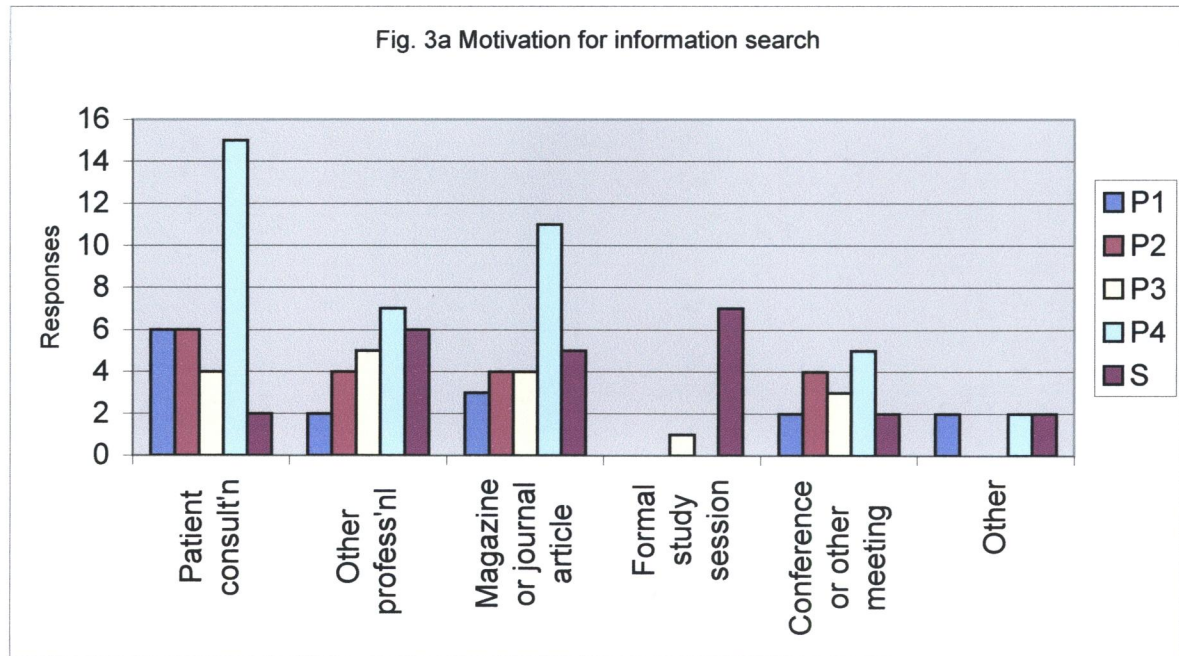
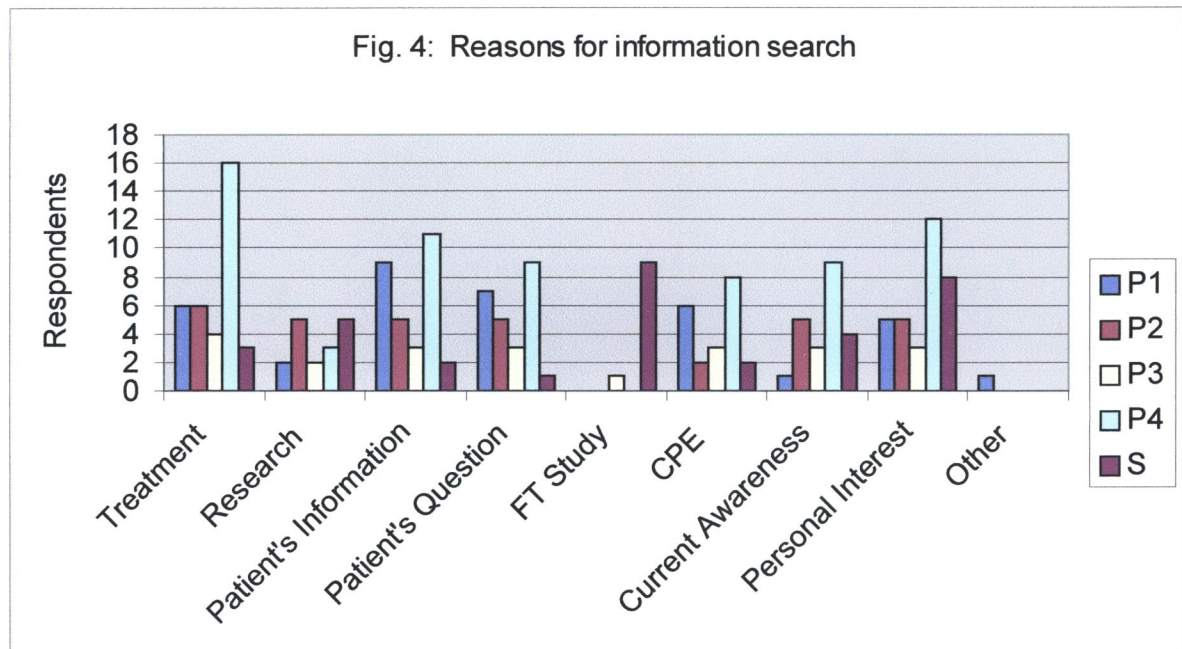


Figure 4: Reasons for requiring information:

Respondents were asked to select the reasons for requiring information from a choice of eight, with an option of adding further reasons if they wished. Figure 4 shows each group's responses, with the percentage of responses for each choice, in Table 1.

Treatment	Research	Patient's Information	Patient's Question	FT Study	CPE	Current Awareness	Personal Interest	Other
35	17	30	25	10	21	22	33	1
68.62%	33.33%	58.82%	49%	19.60%	41.17%	43.13%	64.70%	1.96%

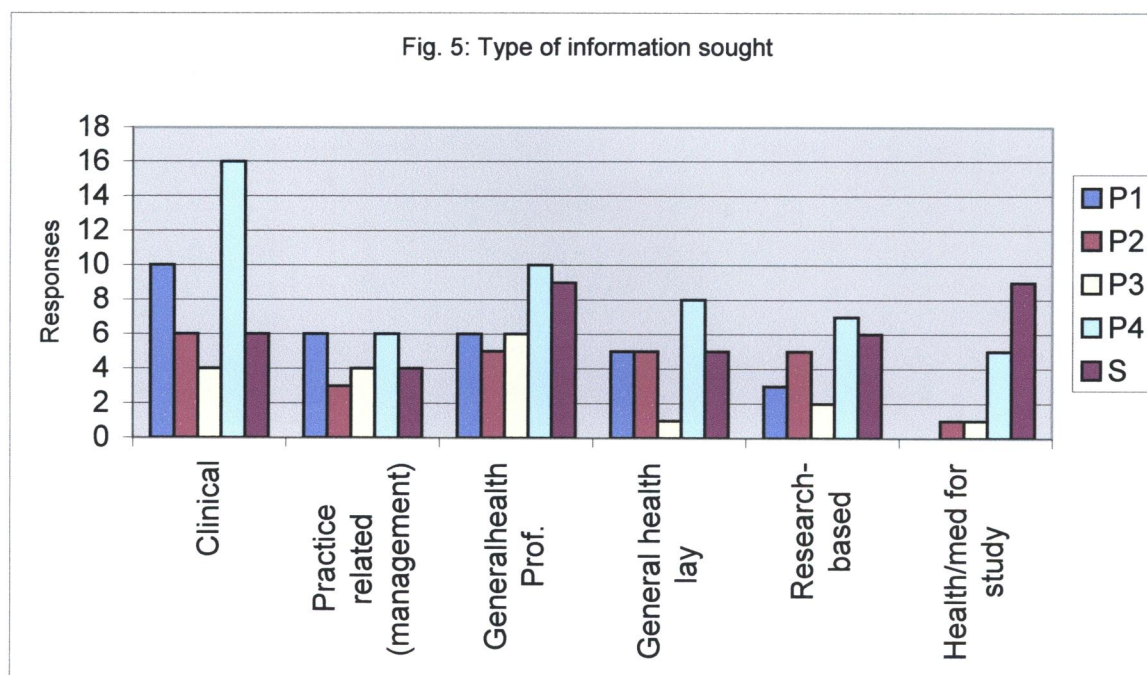
N= 194 Mean= 4.72 Standard deviation= 2.66



Treatment or clinical reasons are indicated as the primary reasons for searching by practitioners in the P4 (over-20) and P2 (6-10) years of practice groups and the prime reason overall; although personal awareness and patient information were also classed as important and full-time study was indicated as most important for students. All groups included CPE. The single "Other" response was noted as "writing exam questions", with no further explanation as to its context. 75% of practitioners searched for information on patient care at least several times a month, and 33% more frequently; this included 70% of the practitioners with the longest practising experience (over 20years). 67% also looked for information in response to patients' questions and for patient information.

Type of information sought:

Figure 5:



N= 164; Mean and median = 3; Standard deviation: 1.66.

Respondents were requested to identify all types of information that they may seek, and most respondents checked more than three; clinical information was the first choice of almost all groups with 82.35% of responses (Table 2), followed by general health topics at a professional level.

Table 2:	Clinical (1)	Practice related (management) (2)	General Health (Professional) (3)	General Health (Lay) (4)	Research – based (5)	Health or medical (study) (6)
Responses	42	23	36	24	23	16
%	82.35%	45.10%	70.58%	47 %	45.10%	31.37 %

Note: percentages do not total 100% as respondents could indicate more than one information choice.

Search process:

This section describes results of those questions concerned with respondents' views on the search process, the success (or otherwise) of their search for information, whether they

review what they have found, confidence in the information they locate and why they cease searching; and where they turn for help if necessary.

Figure 6:

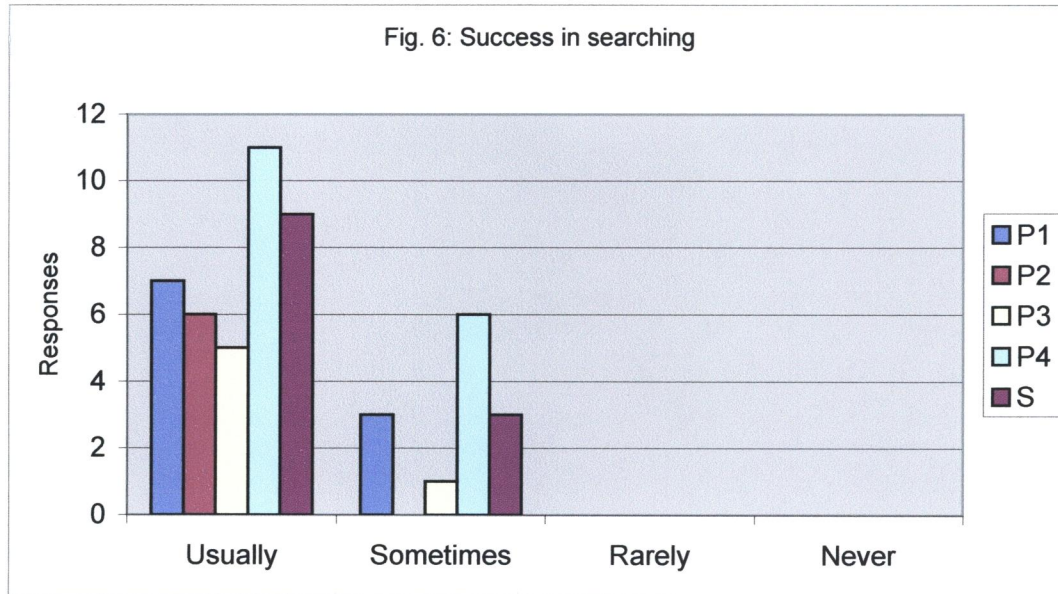
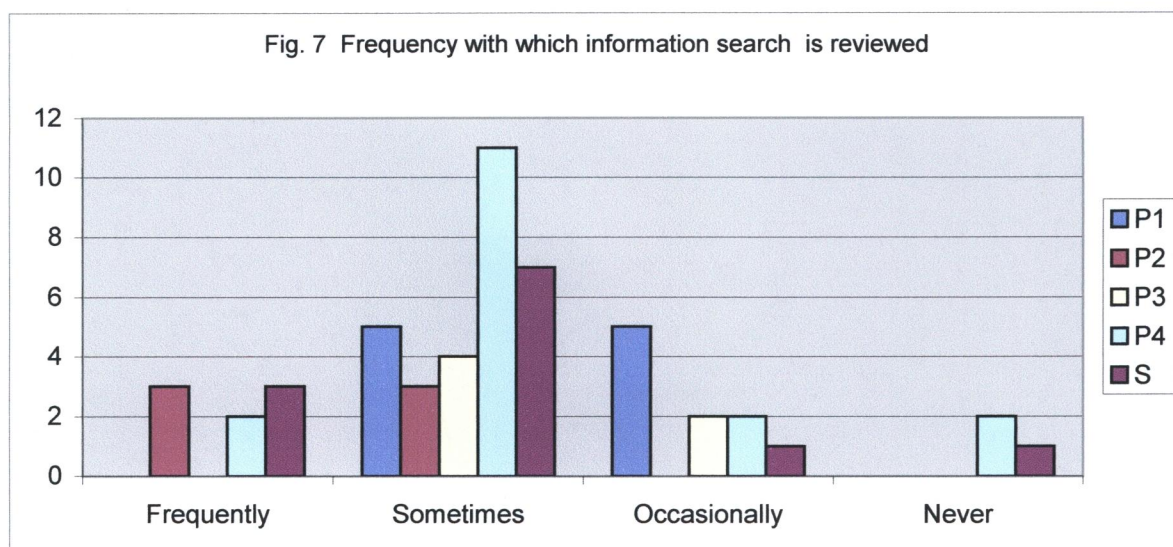


Figure 6 describes the frequency of successful location of information; 74.5% of respondents indicated that they usually found what they needed, only 25.49% replied “sometimes”; no respondent indicated that they were successful “rarely” or “never” in a search.

Responses to the question “ Do you review the information you are looking for and where you are looking during your search?” show that slightly over half the number of respondents (58.82%) review their search “sometimes”, markedly fewer “Frequently “ or “Occasionally” (15.68% and 19.6 % respectively) and 5.88% never review their original question or where they are looking (**Figure 7** and Table 3).

N=51: Mean =2.15, Mode= 2, Standard deviation = 0.75

Table 3	Frequently	Sometimes	Occasionally	Never
Responses	8	30	10	3
%	15.68%	58.82%	19.6%	5.88%



A further question on evaluation of information and source showed that most respondents relied on trusted sources and well-known and trusted journals; only 2 respondents (3.92%) stated that they never used a method of evaluation. Students and practitioners in their first years of practice note that they use their own experience in evaluating material.

Figure 8. N= 150; Mean = 3.16, Median = 3, Standard Deviation = 1.75

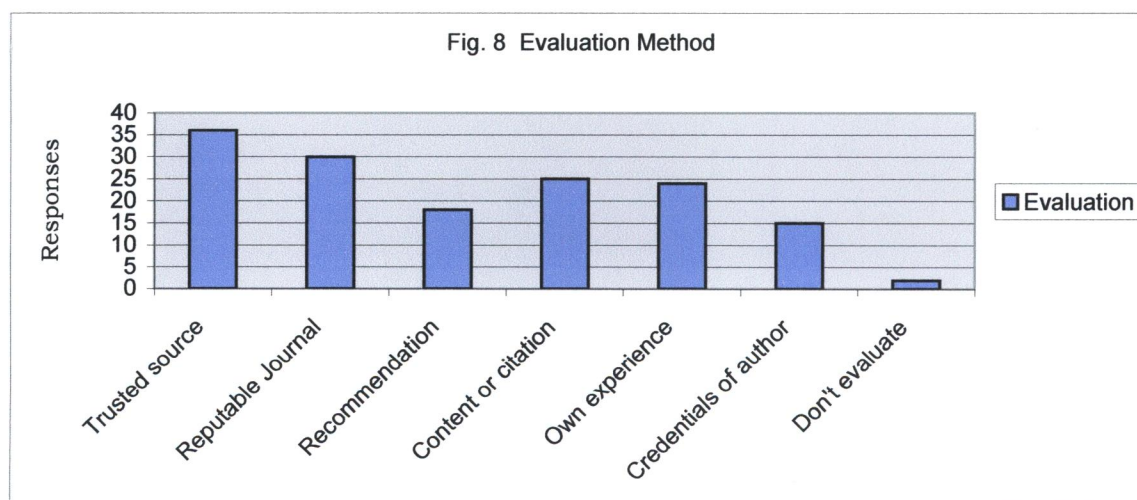
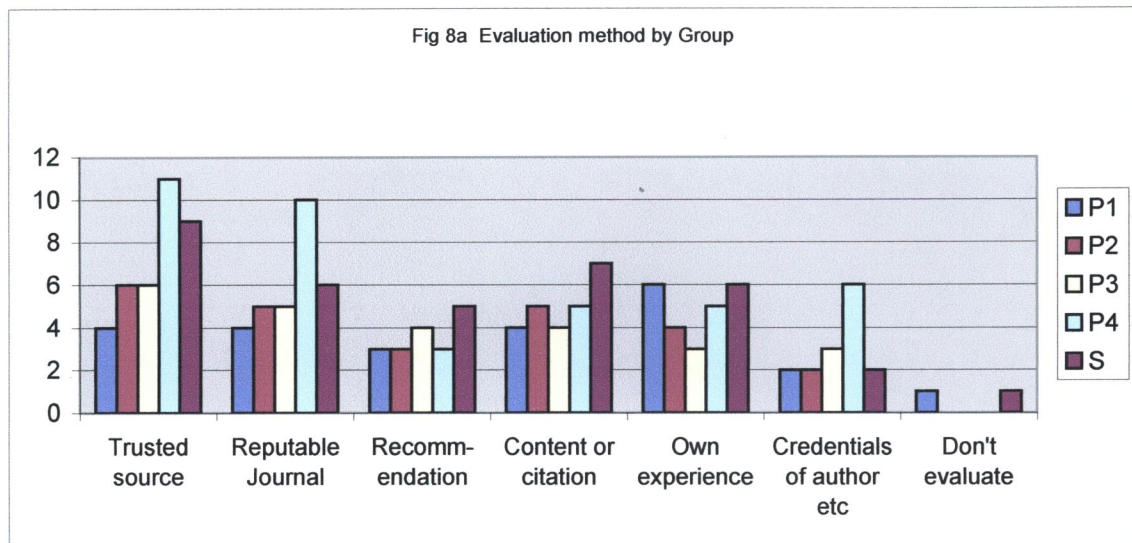


Table 4	Trusted source	Reputable Journal	Recommendation	Content or cite	Own experience	Credentials of author	Don't evaluate
Response	36	30	18	25	24	15	2
%	70.5%	58.82%	35.29%	49.01%	47.05%	29.40%	3.92%



Respondents' confidence in the information they collected (Table 5, **Figure 9** shows the predominant view that most have a fair degree of confidence in the information; only 3 respondents, 2 from the most experienced group, expressed little or no confidence in the information they found - one respondent noted that it is essential to review because of the amount of bias in the information they find, commercial or other, and that this affected their confidence in the information as well as making it harder to find well-credentialed information.

N=51; Mean: 2.1; Standard Deviation 0.88

Table 5	Very	Reasonably	OK	Not very	Not at all
Respondents	11	25	12	2	1
%	21.56%	49.01%	23.52%	3.92%	1.96%

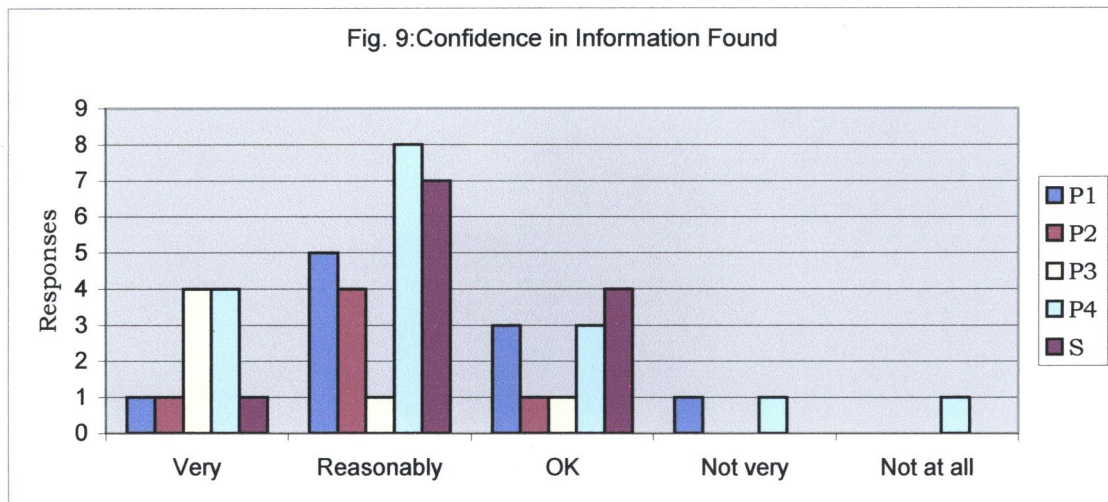
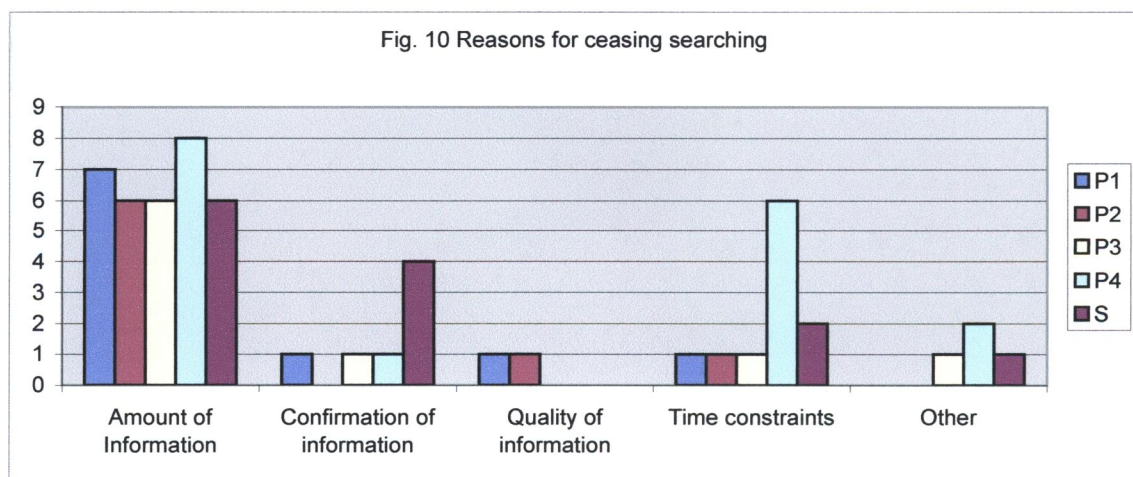


Figure 10:

Respondents were asked to give the reasons that they concluded their search or stopped looking for further information; this was a free answer question, some respondents gave more than one answer and responses were able to be categorised into 4 areas 1) the amount of information located- the specific information they required, or sufficient information was located; 2) Confirmation of information across sources and consistency among the sources looked at; 3) Quality of information and 4) Time constraints.

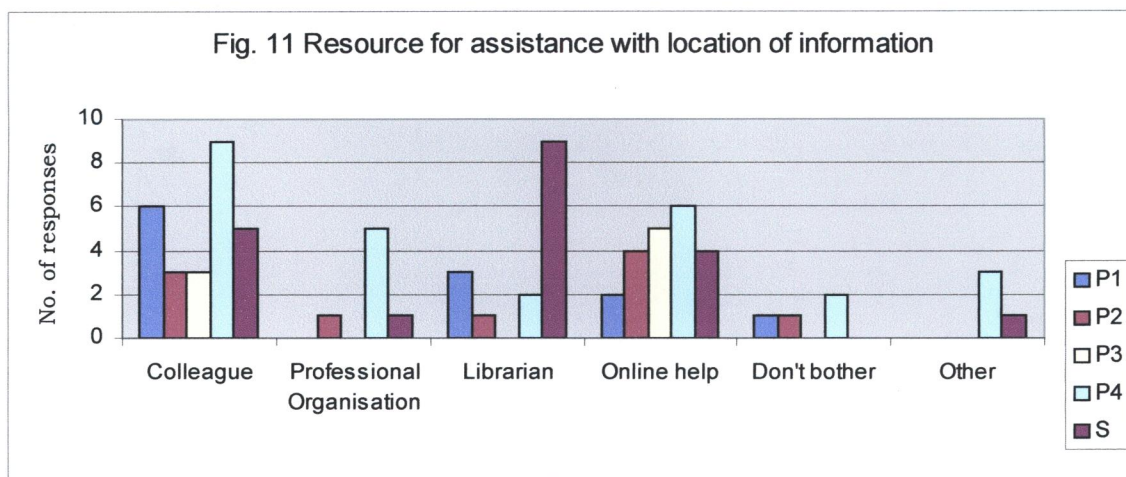


N= 57; Mean = 2.05, Standard Deviation = 1.43

Most respondents in the “amount of information” category (the largest category with 64.7% of respondents) noted that their primary reason for ceasing searching was that they had found enough (including “just enough” and “located specific information”) information on the topic or that their question was answered; the 13.7% who responded with “confirmation of information” cited consistency of information from two or more sources as their reason.

Quality of resources (3.92% of responses) focussed on the drop in quality resources after finding good material. Time constraints were a concern for 21.5% of respondents, particularly for those practitioners with over 20 years in practice; several respondents note frustration if information is not found quickly. Other responses (7.84% of responses) comment that the respondent “never stops looking”, that the information they find is too technical or too medical, and that they had reached “saturation”, without indicating if their question or search was resolved.

For assistance with finding information (**Figure 11**), 51% of responses designated colleagues as the primary resource for help, especially for the over 20 years of experience group, closely followed by online sources such as help-lines or discussion groups (41.17%) which was the source of choice for practitioners with 11-20 years of practice. Students’ source of choice was a librarian (17.64%), for all groups 29.41%, except for the P3 group. Only 7.84% of respondents did not look for assistance at all. Of the “other” answers (7.84%), respondents noted that they “don’t have difficulty”, that they ask their lecturer or look in journals, magazines and texts.



N= 77; Mean= 2.76; Mode = 3; Standard Deviation: 1.53.

Information Sources and Formats:

The investigation of the source or tools and formats used by practitioners and students is to identify which sources and formats they find most helpful. Six survey questions were intended to elicit this information.

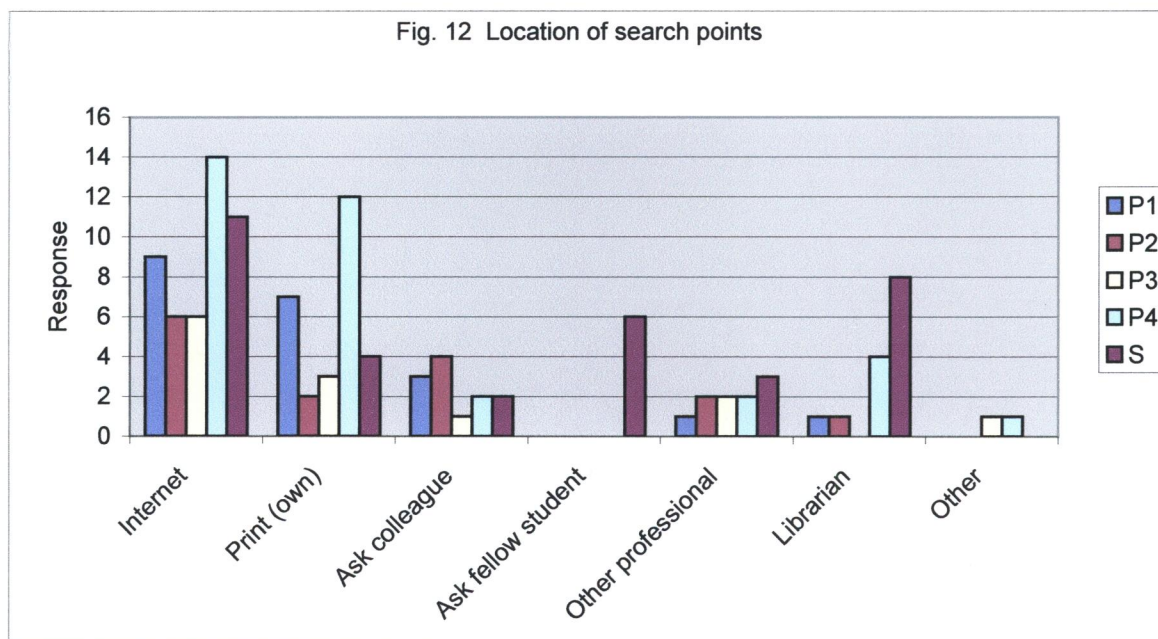
Figure 12: shows the location of information sought – where did respondents go for information?

The Internet is the primary resource for all groups, and practitioners' own collections of print resources is also a major resource for 70% of practitioners with over 20yrs in practice and of those with 0-5 years of experience. Results showed that more respondents had recourse to a librarian than colleagues or other professional, but 66.7% of students indicated this as a primary choice, which for practitioners places this option below asking a colleague. Added sources were professional seminars, and chiropractic magazines.

N = 118; Mean= 2.62; Median 2: Standard Deviation= 1.84

Table 6:							
	Internet	Print (own)	Ask Colleague	Ask Fellow student	Other profession-al	Librarian	Other
Responses	46	28	12	6	10	14	2
%	90.20%	54.91%	23.52%	11.76%	19.60%	27.45%	3.92%

Note: percentages do not total 100% as respondents could indicate more than one choice of search points.



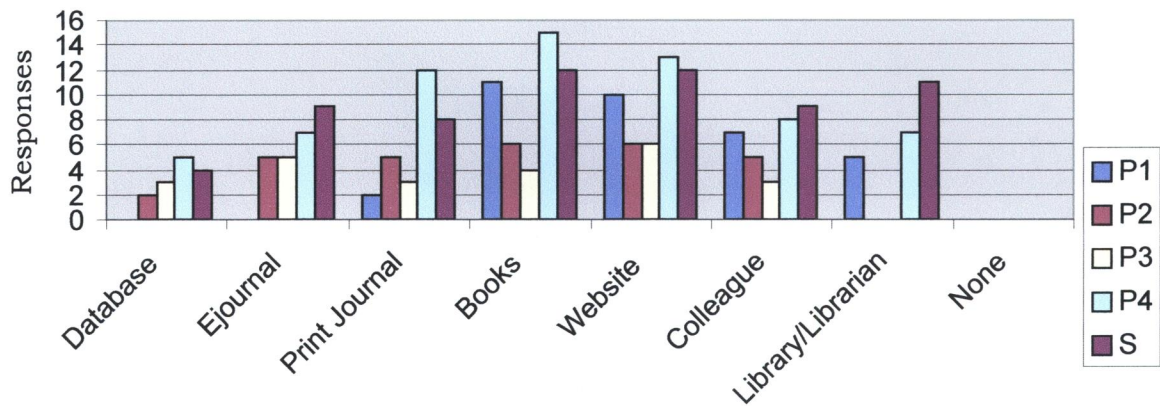
Respondents were asked to select which information sources they had used during the past year from a list of eight options, with the ability to select more than one option.

Figure 13 shows use of these information sources by each of the five groups. 94.11% of respondents had used books; 92.15% had used a website on the Internet. The least used resource was databases, but all respondents used at least one resource within that time.

Table 7.	Database	Online Journal	Print Journal	Books and texts	Internet website	Colleague	Library Librarian	None
Responses	14	26	30	48	47	32	23	0
%	27.45%	50.98%	58.82%	94.11%	92.15%	62.74%	45.09%	0

N= 220; Mean = 4.25; Median =4; Standard Deviation= 0.11

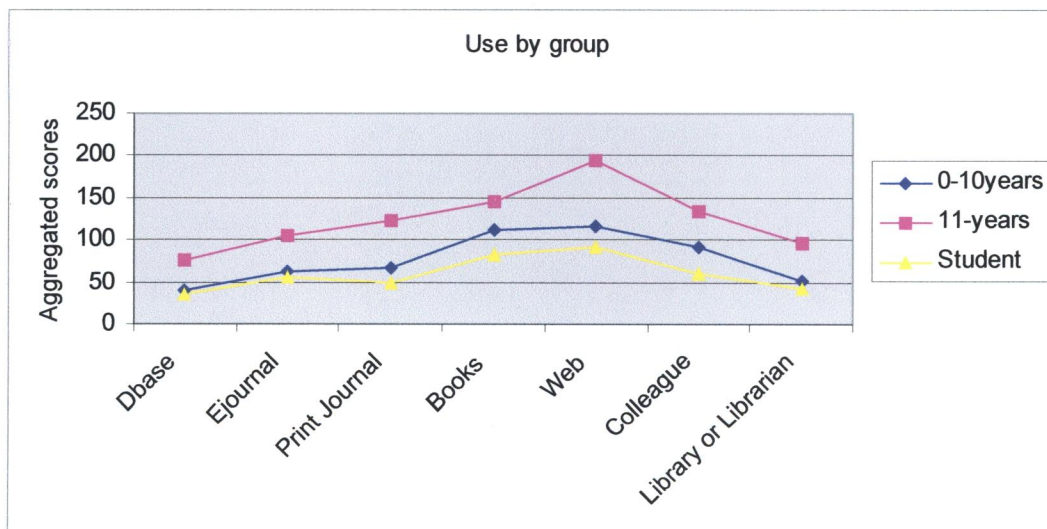
Fig. 13 Resources used within last year

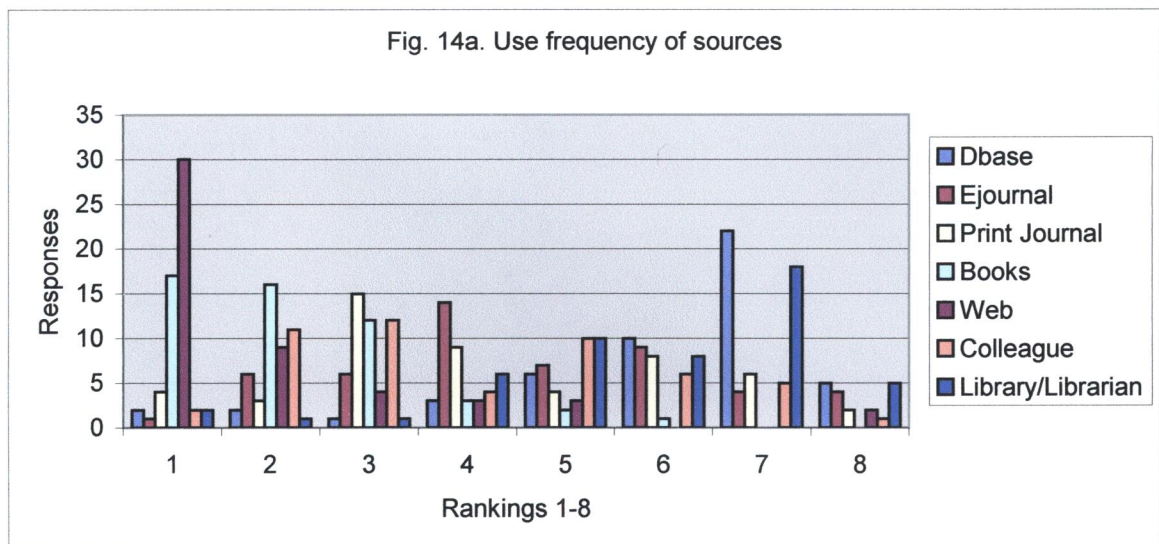


Respondents were then asked to rank these same information sources that they recorded having used, in order of frequency of use, with 1 (as most used) to 7 (as least used).

(Figure 14).

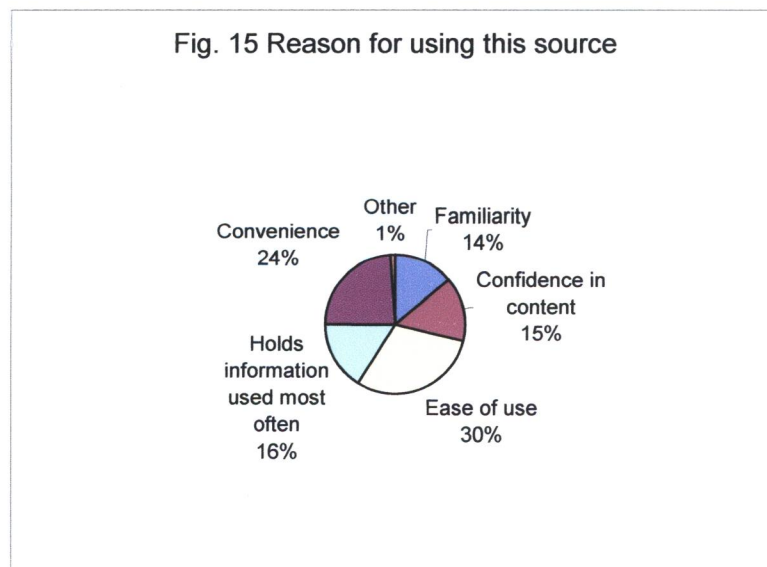
Responses were ranked by this number, with the addition of an extra rank (8) denoting a non-response to that option. Websites/Internet were the most used source, followed by books and colleagues, and databases as the least used.

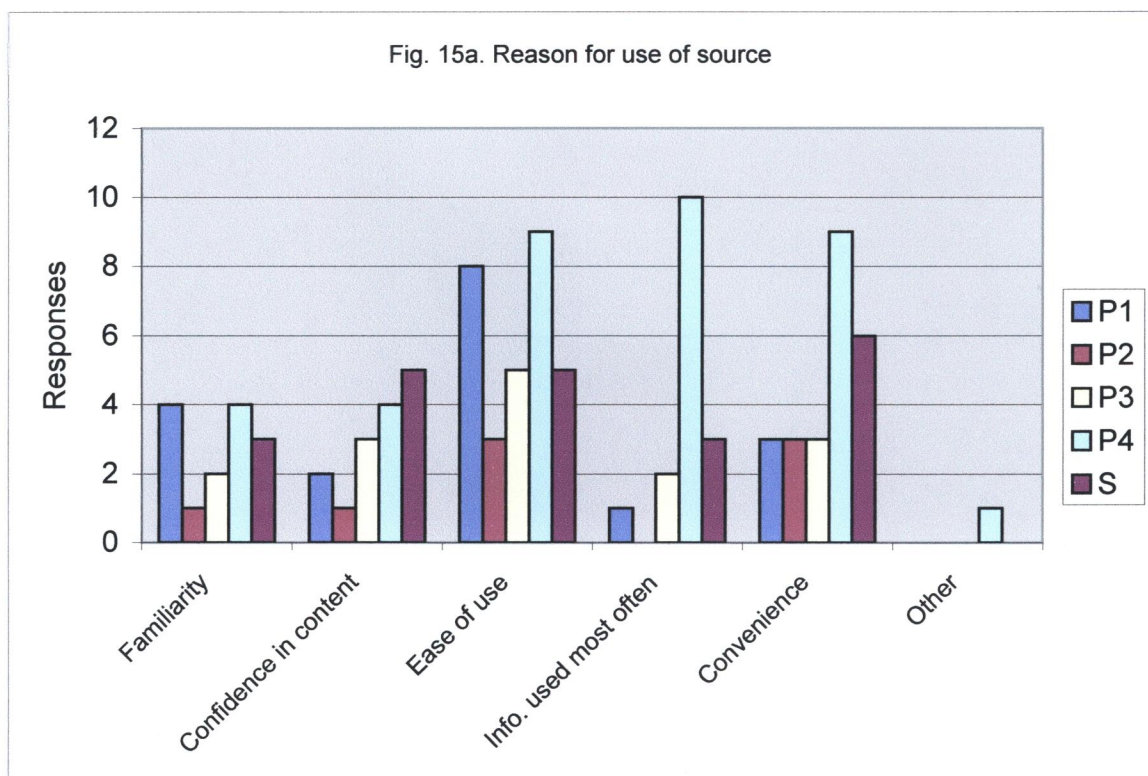




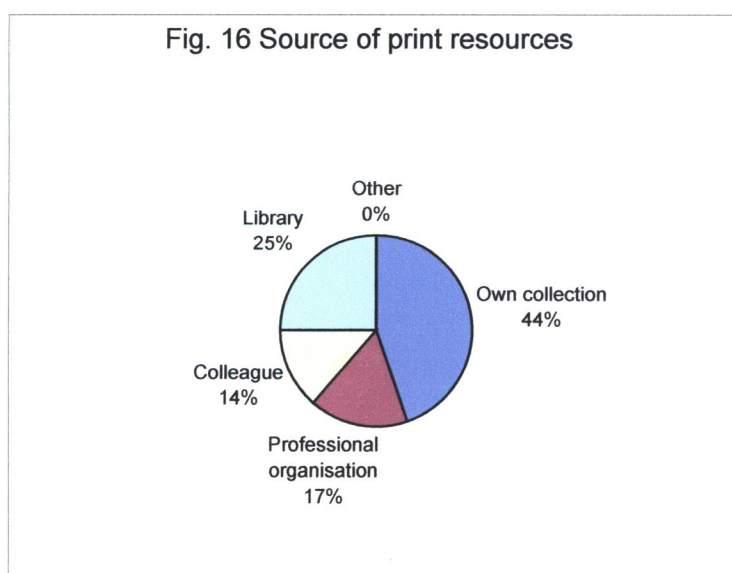
When respondents were asked why they preferred to use this source above others, convenience and ease of use were the main reasons given, with just over half of respondents choosing one of these options (**Figures 15 and 15a**). Students preferred convenience; practitioners with 20 years of practice had almost equal preferences for convenience, ease of use and holding the information they most frequently used.

N=100; Mean= 3.24, Median = 3, Standard Deviation= 1.37





When seeking print resources, most practitioners report sourcing these from their own collections (**Figures 16 and 16a**); only students used a library as the main source, but it was second choice for practitioners in their first years of practice and for those with over 20 years. A professional organisation was the second choice for practitioners in group P2 (6-11 years) and second equal for those with over 20 years of experience (P4).



Respondents were able to make more than one choice.

N= 96; Mean= 2.19, Median =2, Standard Deviation= 1.2

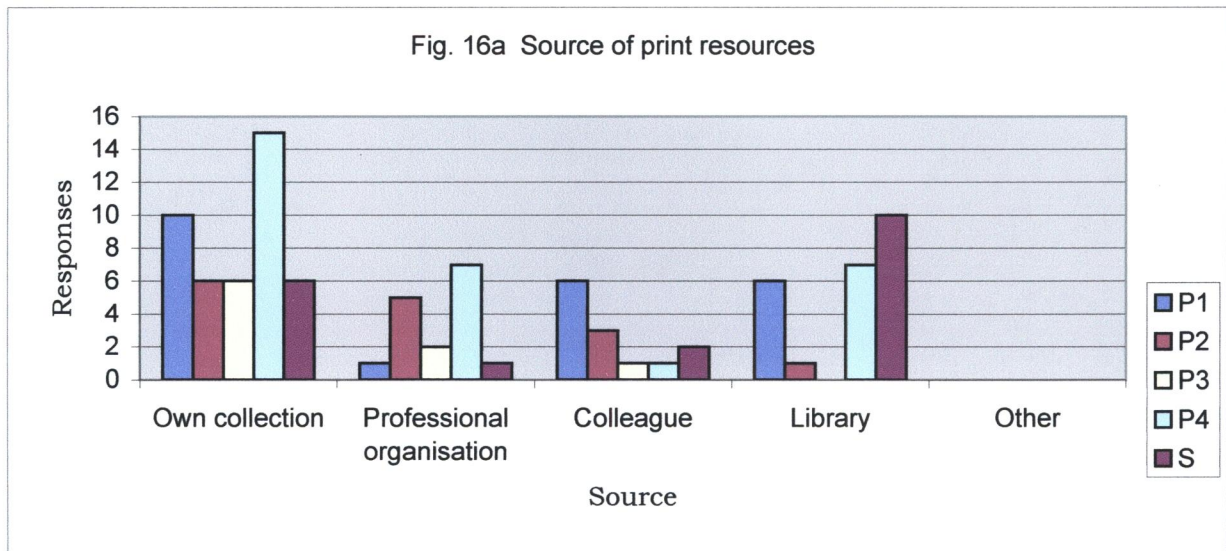
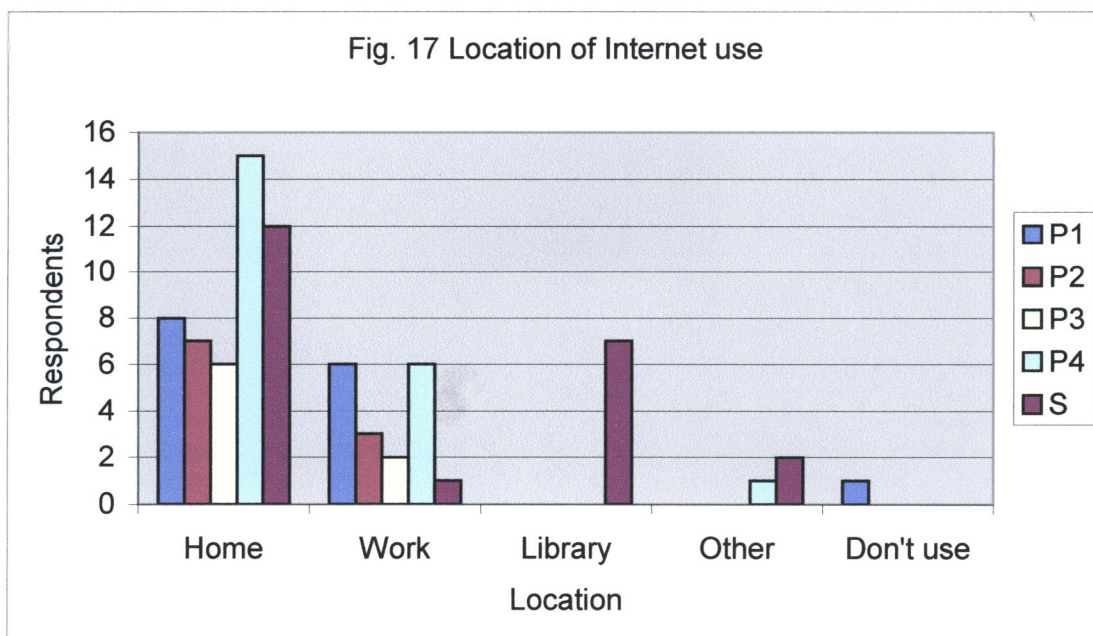


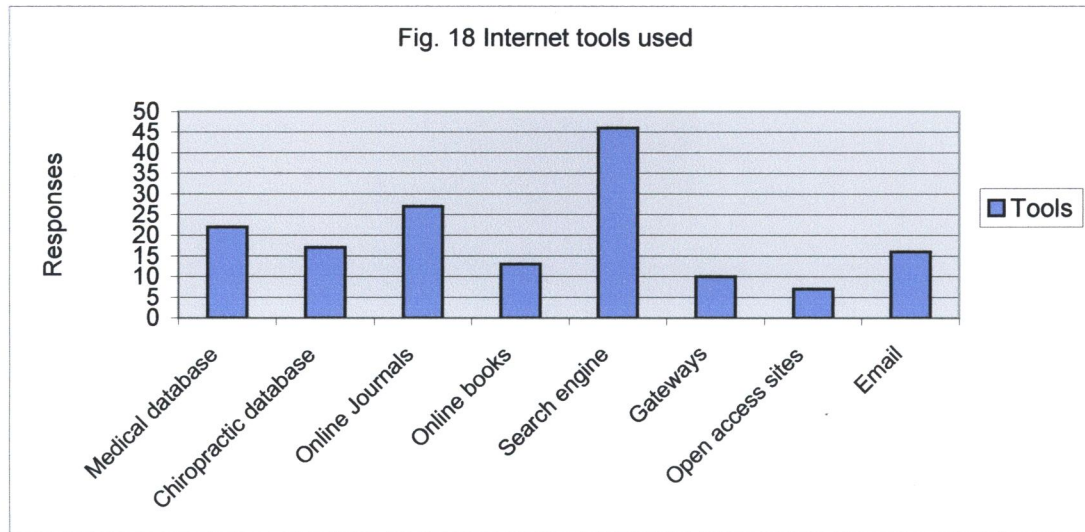
Figure 17 shows where respondents access the Internet; only one respondent stated that they do not use the Internet at all, the majority use it at home solely or at home and at work. Only students access the Internet at a library; other points of use were given as university and internet cafes.

N= 76; Mean = 1.55; Standard Deviation = 0.87



The choice of tool in searching the Internet is illustrated in **Figure 18**; respondents could select more than one tool and most respondents used a search engine, including all practitioners in the P1 (0-5) group. All practitioners in the P2 (6-10) group used online journals, but only 17 respondents used a chiropractic database, fewer than reported using a medical database.

N= 158; Mean = 4.15; Median = 4.5; Standard Deviation = 2.1

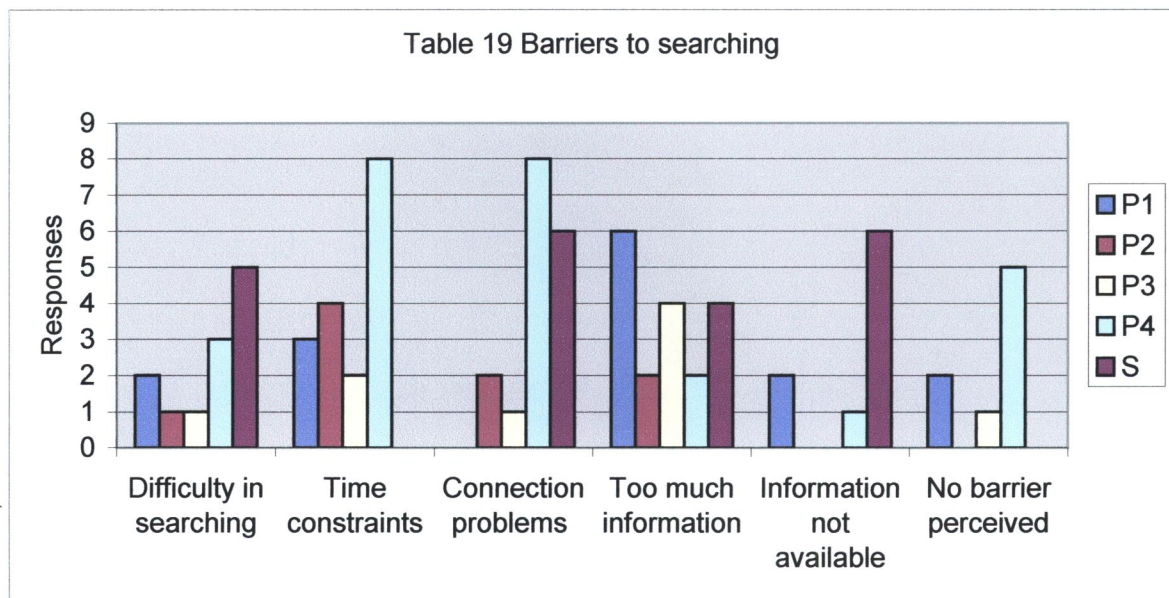


Only eight respondents found no barriers to their use of the Internet (Table 8, **Figure 19**); too much information was a problem for 35% of respondents, and a third found technical (connection) problems restricted their use and time constraints were a problem; time constraints were given also as a reason for ceasing searching.

Half of the P4 practitioners (over 20 years experience) reported both time constraints and connection problems; too much information was a problem for slightly more than a third of respondents, while the perceived unavailability of information predominantly concerned students.

Table 8	Difficulty in searching	Time constraints	Connection problems	Too much information	Information not available	No barrier perceived
Responses	12	17	17	18	9	8
%	23.52%	33.33%	33.33%	35.29%	17.64%	15.86%

N=81; Mean=3.23; Median=3; Standard deviation = 1.52



Interviews

The interviews were conducted to expand on the brief responses required by the questionnaire, and provided clarification and insights into the way chiropractic professionals seek information and their preferences and problems. All interviewees used the internet regularly, searching generally through a search engine or going directly to known sites, and primarily looking for information intended for clinical use, then for chiropractic news. None of the interviewees used a library regularly or consulted a librarian even when they were having trouble finding what they needed, relying on their own collections or consulting colleagues; lack of time and ease of access, as shown by the questionnaire answers, were primary reasons for relying on these sources, and one comment especially that “using the library was too slow” emphasises the expectation of rapid access to the information they seek.

DISCUSSION

Reasons and purpose for information seeking

The study shows that chiropractic professionals are prompted to search for information primarily by personal contacts, whether as part of a professional consultation or from more informal discussions with individuals or at conferences or other meetings, and seek to fill the information gap that the particular incident creates. Chiropractors search often for information, at least several times monthly, and as expected, the individual primary motivator was patient consultation and information needs arise when practitioners see patients. This matches the conclusion reached by Jameson (2002) that when chiropractic professionals search for information, they use the internet as source of clinical information driven by patient care rather than for looking for research findings. The main reason for requiring information, clinical information and treatment, almost precisely matched the motivator in occurrence. The impetus of questions from patients, and the need for information to pass on to patients is the second major driver for practitioners, and these findings are consistent with studies of other health professionals in public practice; the recent survey by Bennett (2005) shows that family physicians were most likely to be seeking information for purposes of diagnosis and patient management, and also for patient education. Chiropractic practitioners' main location of internet use is given as at home, not practice, so the use of web resources at point of contact with patients is not likely to be as common as for medical practitioners; this is not entirely certain however as many chiropractors, especially in smaller centres, may locate their practice at home.

Personal interest however, not related to any form of study, was another prominent reason given and this relates to the prominence given to the frequency of discussions with other professionals and the reading of magazines and journals as motivators. Continuing education or maintaining current awareness were lesser drivers, but research as a reason for requiring information was not prominent.

Given that the prime motivator for an information search is the patient consultation, it is logical that the main types of information sought by both practising chiropractors and by

students are clinical in nature or of general health information primarily at the professional level; an example given in an interview is the need to address chiropractic concurrence with a review of the medical diagnosis of symptoms. Respondents reported looking for professional level health information far more than for similar information at a lay level, implying that while a major reason given for seeking information is for patient information or in response to their questions, chiropractic practitioners prefer to assimilate and compile information before presenting it to patients rather than providing them with ready-made information; practitioners report using the information directly with the patient and that they read and review the information at both the patient and chiropractor level, as questions from patients often arise from articles seen in the media – a regular query, for instance, regards backpacks and children which may consist of either a general request for more information or arise from a consultation. The study by Diaz (2005) showed the importance of talking with patients about web-based information and providing an explanation of what they find; patients put great trust in websites recommended by their physician and regard them as the most credible, which may allay concerns that patients may be accessing poor quality information, but also assumes that physicians are able to, and have the time to, fully evaluate the information sites they recommend.

Information sources, selection and evaluation

The Internet as a search resource is extremely popular with chiropractors and students with 90% choosing it as their primary source of information; the only other resource that compares in use with the internet is the personal collections of print resources used by practitioners with over 20 year experience and by 70% of practitioners with only up to five years experience; this latter group is possibly in a large part using the texts used during formal education in chiropractic; less than half of the remaining practitioners use their own print resources.

This level of reliance on the Internet as a source is an interesting finding, especially as it is used by all regardless of years in practice – for over 70% of practitioners with 20-plus years of experience, 90% of students and practitioners in their first years of practice and 100% of other practitioners, it is their main resource. Bellman (2005) evidences a “generational shift”

toward computer-based resources when comparing newer (in years of practice) physicians to older practitioners, but this was not evident here.

Compared to other practitioners, this level of internet use is high; a number of other studies, admittedly some much earlier report widely varying attitudes to the use of the internet as an information resource. Eberhart-Phillips (2000), also in New Zealand, concludes that Internet use by GPs (general practitioners) is widespread and used by 81% of respondents for medical knowledge or information for patients, while an earlier study reported by Case (2002) says of research conducted in the mid-1990s “most information needs pursued are satisfied by textbooks, drug texts, and people (with the emphasis on colleagues) and other highly familiar sources, while relatively little use is made of the Internet or the library”.

In 2005, Boissin found that general practitioners in France mostly use their own collections, medical journals, colleagues and CPE events as primary sources of information; a minority use the Internet, regarding such sources as unreliable; however, Boissin also noted that although most physicians in France have a computer, they are underused for searching for medical information, whereas the study by Bennett and Casebeer (2005) found that “family physicians have access to technology for information and are using it... physicians consider the Internet an important information source”.

Andrews (2005) notes that participants in their study did not use online sources as much as print; 94% of chiropractors and students report using books and 58% report using print journals on a regular basis; again, the Bennett study (2005) concludes that the increase in use of the Internet led to a decrease both in journal usage and in local continuing professional education. This may be true, but as there is no prior information available on the level of journal usage or CPE by chiropractors, there is no basis for comparison in this study; and continuing education is reported as having a low level of priority with chiropractic professionals as a reason for searching for information. Over 50% of survey respondents, however, report the use of both ejournals and print journals. This level of journal use is not common to all participants in the survey, and may also reflect the ease of access to these resources for those who report using them. Practitioners with more than 20 years experience and students are both predominant users of journals whether print or online; this reflects again on the possession of print resources by the older practitioners and the requirements

placed on students by study and their access to a library; students are the only group to use the library as the main point of internet access and of print and journal use. In the other practitioner groups, reported use of journals, online or print, is not high, and use may be limited to specific occasions; one respondent noted that the only time they used a research journal was when it was required by a continuing education course. In the past, many chiropractic journals have had erratic publication histories and many have “come and gone”, which may have limited reliance on their use by practitioners, however, the older practitioners who may be expected to be most affected by this in the past report most use of journals.

Even though many now are available online, whether by subscription, individual article purchase or as free access magazines such as Chiropractic Economics and JACA (Journal of the American Chiropractic Organisation), interviewees reported use of “condensed” information such as is found in the practice journal “On Purpose”, a monthly digest of science, practice and philosophy in CD format that provides a bibliography and abstracts related to the topics discussed by presenters in the CDs, and noted that they read abstracts in those chiropractic journals, magazines and newsletters that are open access online; otherwise often another colleague has a copy or one “can be obtained by family or friends through another institution” a finding also reported by Cullen (2002). Other sources noted are information updates through “info-flicks” and automatically emailed updates from websites or listserves that they are subscribed to. Within the CAM fields, Smith, C. (2005) says that information resources most often used by naturopaths are professional newsletters, seminars by manufacturers, patient feedback and the personal observation of patients, all of which would apply to chiropractors but which have not been specifically mentioned.

The importance of colleagues as an information resource is reported widely in other studies (Dee, 2005; Leckie, 2002; Powell, 2003, Smith, R., 1996) and is nominated as a frequent source of information by 62% of the chiropractic practitioners in this survey. Leckie’s review gives a number of explanations for why colleagues are regarded as important as an information resource so often, among them that colleagues are “easily accessible, dispense accurate information and are inexpensive”. R. Smith, (1996) adds that (physicians) are asking for support, guidance and/or approval when specific information is required when

consulting colleagues, however phrased. Coumou (2006), however has reservations, saying that colleagues fall into “opinion based medicine” that cannot be relied on and as Powell (2003) says, is “likely to be based on personal observations rather than objective evidence”. No further comment was offered by chiropractors or students regarding their reliance on colleagues as an information source and as their main source of help when seeking information, but it may be assumed that similar reasons apply; while the reliance in the past on personal observation and opinion in relation to technique and effectiveness is now giving way to objective methods of assessment, it is inevitable that in a small community, however widely spread, that recourse to a known fellow practitioner will be seen as a convenient, speedy and comfortable resource.

Ease of access and use of resources has already been mentioned as a reason for use of colleagues and of journals and has been offered by chiropractors and student participants as the main reason for using their preferred source of information, the Internet. Ease of use was the main reason given by 30% of respondents, then convenience by 24%; but confidence in the content is only half (15%) that for ease of use and only 16% say that their choice of favourite source is because it holds the information they use most often. Some of the heaviest users of the internet, those practitioners with more than 20 years experience, also have the most confidence in the content and rank it as the information used most often and convenient.

This does not necessarily indicate a lack of awareness of deficiencies in relying on the Internet as an information source, but gives rise to concern that practitioners may be less critical than is ideal, as also noted before. This is reinforced by the findings that the majority of respondents say that they review their search strategies and information only sometimes during their search process, nearly 20% “occasionally” review their search and three respondents (5.8%) never do. Another correlation with a finding by Cullen (2002) that “respondents’ lack of ability to appraise the literature confidently and the tendency of some to test all knowledge against their existing clinical knowledge is worrisome” is that a significant number of students and practitioners (47%) do report their own experience as an evaluation method, and that one practitioner reports their own knowledge both as a source and an assessment tool for information. Another respondent noted that it is essential to review

because of the amount of potential bias in information, a view shared by respondents in the study by C. Smith (2005), who reported that naturopaths expressed a need for unbiased information and expressed concerns regarding objectivity on information from commercial sources such as manufacturers.

Confidence in information

Most respondents to this study however are reasonably confident that the information they locate is trustworthy; and only three had little or no confidence in it. Some inconsistency in responses is evident, though; most respondents indicated lack of confidence in web information, though the internet is the most used source; this correlates with use of preferred sites and known sources, and this inconsistency is also shown through other studies (Boissin (2005), Cullen (2002)). Eberhart-Phillips (2000) in the study on Internet use by New Zealand general practitioners found that over $\frac{1}{4}$ of respondents feared that medical information available on the Web (especially that may be searched for by patients) is not accurate enough, although Diaz et al (2005) found that “most subjects using the internet were successful when attempting to find answers to a series of health questions” and that accuracy was generally good.

One particular concern raised in this survey was that of popular and trade magazines and “profession” websites which may contain interesting articles, but often with no way of finding out where the information is sourced or what it is based on – opinion, commerce or bias. Conversely, in a comparatively small field such as chiropractic, a major factor in a search can be that for ‘recognised’ authorities, who are easily identified and located as sources of information in their area of expertise; the use of “known sites “ is a main factor in search for these authorities

Success and problems in searching

All respondents to the survey are confident in their ability to find information to fit their needs, but many qualify their success; all report finding some information but not all are happy with what they find and most report finding barriers to their searches; only 8 practitioners reported no barriers. Searches were seen as adequate for 95% of information needs and good for the main sources of chiropractic information, but less so for other

information. Consistent with studies noted elsewhere, time and skills appear to be major barriers, and lack of knowledge of sources was also noted (Andrews, (2005); Bennett (2005), Coumou (2006).

A common theme in chiropractors' responses was the time taken to access quality information, and the difficulty found in searching – the internet was easiest to get something from, but was often not seen as adequate to provide the information to make definite conclusions; Google was named as a primary tool for “ease of access” to information sites, but selection then became time consuming.

Time is repeatedly given as a reason for limiting searches for information, for the use of one resource over another, and in some cases for the form in which the information is observed - again referring to the use of abstracts and compiled information as above.

Databases, the resource reportedly least used and least acknowledged are seen as hard to search and hard to find information in, and even hard to find; one respondent asked “how do you know they are there?” Databases, even those targeted at a specific audience, such as ICL, are perceived as slow, specialist and difficult, and if they do not offer fulltext or even abstracts, are seen as less useful, as shown by one response where the respondent knows of the knows of the availability of the ICL index, but as it has no, or few, abstracts, so doesn't use it. The library is perceived as a slow response also.

The second major problem, and the main reason for ceasing searching, is the amount of information located. “Too much” information is a problem noted by all groups of respondents. While many respondents stop searching because they have found enough information to fill their need or have the specific information they were seeking, many find that they had reached “saturation” point. It is interesting that as a reason for ceasing searching it was implicit that “enough” information often equalled “good” information, as a drop in quality was also a reason for ceasing. This is also related to the “trusted source” evaluation, as the trusted source also relates to frequency of review and confirmation of quality.

The reported unavailability of information concerned mainly students and is possibly related to their lack of skills or lack of experience.

The cost involved in subscribing to major journals is also raised, and online purchase of articles is noted as being used occasionally but expensive (mostly US or UK based, so the

exchange rate is affected); this relates back to use of colleagues for information and the sharing of journals; it is interesting that the library again is not seen as part of the solution.

Smith, C (2005) in discussing problems found by naturopaths again noted time, overload, misleading or incorrect information in the media as problems raised, but also the division between CAM and orthodox practitioners seen as main barrier to information access. This last does not seem to be a major problem for chiropractors, who do report using another professional, as opposed to a chiropractic professional, as a source of information. Smith also notes complex language in printed information as a problem, and a similar problem was raised in this survey also, with two respondents raising too technical or too medical language and information on the topics they sought.

A final barrier noted related to technology – problems with connection made access to online information difficult for some, the slowness of connection making downloading files difficult and extending the time expended on searching.

Research and Continuing Professional Education

Research and continuing education were both given low priorities as reasons for an information need or for information seeking; personal interest and current awareness were greater motivators, so keeping abreast of information is of importance to chiropractors, but would seem to be desired more at an informal level than in depth, though this may again be related as much to time and availability of opportunities.

The uptake of CPE appears currently to depend on what is offered; as standards and requirements are yet to be set by the Board, it is still practitioner-driven.

What practitioners do in terms of CPE often also depends on what is offered in their particular field of interest- for practice, technique seminars (chiropractors report searching for courses on techniques not practiced), or focussed on the type of patient (e.g specifically paediatric); for new graduates, requirements are often retrospective rather than pro-active. Others areas of skills required may not relate directly to maintaining competency, but in practice management and business, and many less formal opportunities occur for chiropractors to attend, such as the regular conference Dynamic Growth (DG), offering information in philosophy and management, and opportunities for peer contact but fewer

opportunities for the acquisition of research based information. This is not to say that such occasions are not important; another point noted by respondents is that it is easy to lose touch with peers and get caught up in one's own world especially a practitioner is in a more isolated area, and it is one way of keeping in touch.

The perceived lack of interest in research (whether in engaging in research or for using research information in improving practice) has long been a concern as noted in the introduction to this paper. Chiropractic is narrow in that there is a limited number of techniques but ongoing research is required to validate the use of these within the overall therapy, and the benefits of chiropractic as a therapy. The establishment and maintenance of high standards of chiropractic education is assisting the development, albeit currently small, of a research culture, as well as the establishment of research funding organisations such as the Australian Spinal Research Foundation, but the regular use of research studies has yet to become habit with practitioners, points also made by Kelner,(2006) when discussing the movement of CAM therapies into the mainstream of health practice.

The Library

Library services ranked last in nearly every section of the survey; although the library is seen as the best source for some chiropractic literature, in general it not considered useful for the practitioner, and not easy to reach especially as isolation is a problem for practitioners in rural areas or smaller centres, and makes accessing library resources difficult.

To users rapidly becoming accustomed to the speed of electronic systems, accessing material through the library is frequently seen as too slow, and this was a point made in the interviews. Haigh (2006) reports that professional and personal networks are preferred to libraries when information is required, and this is borne out by responses in this survey where the popularity of library as information source is shown only with students and a minority of older practitioners, and used by only two of the newer practitioners. Slightly more respondents use the library as a help resource, again used by students, and seven practitioners within the last year; however, frequency of use is very low.

Research in other areas of medical practice (Powell, 2003; Haigh, 2006) has shown that the library's role in targeting service and resource provision can make considerable difference in

increasing practitioners' efficiency in awareness and retrieval of research -based information, and C..Smith (2005) recommends encouraging library use as resource for help, through named library contacts and mentorship to improve practitioner skills.

While respondents were asked about their use of the Library, and use is low, no respondent mentioned the use of an online catalogue, either in terms of online use, or of library use. This may be another area of lack of knowledge of the potential for information retrieval.

Limitations of the study:

The main limitation of the study is the small size of the survey, limited both by the initial survey base and by the response received. Although the information gained through interviews expanded the knowledge gained, the original expectation of focus groups would have provided a wider range of experience and response.

The choice of survey was also a limitation; Smith, (1996) describes a questionnaire as a blunt instrument and recommends observational studies, but this is made more difficult in this field by the small chiropractic population and their wide geographic spread, another limitation that was recognised as a potential problem when deciding to use focus groups, but was the reason a questionnaire was chosen. Self-reporting, as in questionnaire,s is a potential source of bias (Smith,C,(2005), Smith, R (1996), Bryant (2002)) especially in second-guessing what is wanted and delivering self-perceived estimates and opinions, not observed behaviour. Forsetlund (2001) observed behaviour; but concluded they were not qualified to judge clinical questions arising from practice, so users and questions need to be defined clearly. This survey is obviously open to this form of bias, and this is recognised.

A major limitation in retrospect is that the use of the term "information" was not clearly defined (refer Shenton (2002) "concepts on information are context specific"). Respondents appear to have assumed that the term referred to the acquisition of material assisting them in their profession and covered 'help' and their own knowledge also, but it should have been made clear so that investigator and respondents could be correctly aligned.

CONCLUSION AND RECOMMENDATIONS

Although the low response rate to both questionnaire and interview have meant that the results of this survey will not be statistically valid to extrapolate to the whole chiropractic community, it has been possible to highlight a number of points that are of interest. In general, the findings in this study confirm that the information seeking needs and behaviours of chiropractic professionals and students show many similarities with the results of studies carried out on the information seeking needs of other health professionals, with some differences.

While chiropractors seek information regularly and use a number of sources, primarily for clinical reasons and for personal interest, they do not search for or use research-based information frequently and rely on the Internet, colleagues and their own collections to supply their main information needs; while internet use is high among all practitioners, the use of electronic resources such as ejournals and online databases is low. Differences in preferred search resources and information access between practitioners and students did not prove significant, once formal study was removed as a factor, as resource use and frequencies for all respondents were little different. It appears that there is need to encourage the use of research-based information, and potential to provide easier access to those resources contained in databases and libraries. As the overwhelming majority of chiropractors of all levels of experience use the Internet, the investigation of the provision of targeted web-based services and training in their use may be profitable.

To be certain that these findings are accurate they require confirmation with a larger dataset, ideally utilising observation or group discussions, and refining some of the questions that have proved to be too blunt for such a narrow field of practice.

Chiropractors are used to using their own resources for information access and are either unaware of or do not use more complex forms of information retrieval, preferring those that offer rapid access to known sources. They are, however aware that this approach has limitations, and when necessary will use other approaches. Encouragement to use validated

research and the databases that are the key to them is necessary, and training sessions in basic research information skills could be offered as part of a CPE or conference programme

The value placed by them on human sources of information and help (colleagues and other professionals etc) points to the usefulness of offering mediated searches or information guidance to encourage the use of formal information systems and services.

A closer relationship between the professional organisation and the library for providing information more easily accessible by practitioners should be investigated, and working through the Association rather than individuals could benefit from the collegial links.

As almost all practitioners use computers and the internet on a regular basis, investigation, either by the library or in conjunction with other organisations, of the integration of tools into a single or standardised interface as described by Andrews (2005).

Further investigation is needed of what practitioners regard the library could do for them, and what and how they would prefer to access the services they want.

While it was not part of this research specifically to determine what users' and potential users' expectations and requirements are of a library, it is hoped that the results of this survey will inform the Library, the College and the chiropractic profession both in New Zealand and elsewhere in identifying potential pathways and priorities in the investigation of the need for provision of information, library and resource services to the profession, and that this research will enrich the information available to library managers and professionals in CAM fields, to help to inform their decisions on service planning; as Bryant (2000) states, "costly penalties of ignorance may be attached to the development of new services to primary care, designed without regard to the findings of previous research into the information needs and information-seeking behaviour (of general practitioners)".

DEFINITION OF TERMS

ALTHEALTHWATCH: Database covering complementary, holistic and integrated approaches to health care and wellness.

AMED: Allied and Complementary Medicine database, produced by the Health Care Information Service of the British Library and focussing on complementary medicine, allied medicine and palliative care.

BioMed Central: an open access publisher listing (currently) 176 fully open access journals, and access to research articles.

CAM: Complementary and Alternative medicine; often defined as any medical system, practice, or product that is not currently thought of as standard care.

CCEA: Council on Chiropractic Education Australasia, which since 2002 has undertaken the accreditation of Australasian chiropractic programmes, among other regulatory functions

Chiropractic: A manual therapy, chiropractic is a CAM alternative medical system based on optimising spinal and nerve function. It focuses on the relationship between bodily structure (primarily that of the spine) and function, and how that relationship affects the preservation and restoration of health. Chiropractors use manipulation as an integral treatment tool.

EPIC: a series of databases, including health topics, index and fulltext, provided through membership in a national consortium.

HealthIndex: refer MANTIS

HPCA: Health Practitioners' Competency Act 2003; superseded and extended the requirements set down in the Chiropractors' Act 1984.

MANTIS (HealthIndex): A major osteopathic, chiropractic and manual medicine database providing indexing, abstracts and links to fulltext journals.

MEDLINE: medical database maintained by the National Library of Medicine in the United States, primary component of PubMed

NZCA: New Zealand Chiropractors' Association

OPAC: Online public access catalogue (libraries).

PubMed: public access search engine for access to MedLine; part of the National Library of Medicine's Entrez retrieval system

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Appendix 1

Questionnaire



The questionnaire should take no more than 15 minutes to complete; please tick the boxes that most closely fit your experience, and return the completed questionnaire either in the enclosed envelope, or by fax to (09) 523-0546

Questionnaire

Part 1

Question 1:

How often do you look for health/chiropractic information?

- a) ☐ daily
- b) ☐ several times a week
- c) ☐ several times a month
- d) ☐ occasionally
- e) ☐ never

Question 2:

What are the reasons you may look for information? (Please check all that apply)

- a) ☐ treatment/clinical
- b) ☐ research
- c) ☐ to give, or recommend, to patients
- d) ☐ in response to patients' questions

- e) ☐ full time study
- f) ☐ continuing professional development or further professional qualification
- g) ☐ current awareness
- h) ☐ personal interest or curiosity
- i) ☐ other (please describe)

Question 3:

What prompts you to look for information?

- a) ☐ patient consultation
- b) ☐ discussion with an/other professional/s
- c) ☐ **reading magazine or journal articles**
- d) ☐ formal study sessions
- e) ☐ conference, professional meeting
- f) ☐ other (please describe)

Question 4:

What kind of information do you look for? (Please check all that apply)

- a) ☐ clinical (to support patient care)
- b) ☐ practice-related (business, staff-related)
- c) ☐ general health information (professional level)
- d) ☐ general health information (lay persons level)
- e) ☐ research-based (reviews, case studies etc)
- f) ☐ health/medical information to support study

Question 5:

How do you commonly look for the information you want?

- a) ☐ Use the internet or other online source
- c) ☐ Use own print resources
- b) ☐ Ask colleagues
- c) ☐ Ask fellow students
- d) ☐ Ask another health-related professional
- e) ☐ Use a library or other information service professional

f) ☐ other (please describe)

Question 6:

Do you generally find what you are looking for?

- a) ☐ usually
- b) ☐ sometimes
- c) ☐ not very often
- d) ☐ never

Question 7:

How do you decide that you had enough information (why did you stop looking)?

Question 8:

Do you review the type of information you are looking for and where you are looking during an information search?

- a) ☐ Frequently
- b) ☐ Sometimes
- c) ☐ Occasionally
- d) ☐ Never

Question 9:

If you have difficulty in finding information, where do you go for help?

- a) ☐ colleague
- b) ☐ professional organisation
- c) ☐ Library/librarian
- d) ☐ Online (helplines, discussion groups)
- e) ☐ Don't bother
- f) ☐ Other (please describe)

Question 10:

Which of the following information sources have you used in the last year? (Please check all that apply)

- a) ☐ Database

- b) ☐ Online journal
- c) ☐ Print journal
- d) ☐ Books (including textbooks)
- e) ☐ Internet/web site
- f) ☐ Colleague
- g) ☐ Library/Librarian
- h) ☐ None of the above

Question 11:

Please rank the information sources by frequency used (1=most often, 7= least often)

- a) ☐ Database
- b) ☐ Online journal
- c) ☐ Print journal
- d) ☐ Books (including textbooks)
- e) ☐ Internet/web site
- f) ☐ Colleagues
- g) ☐ Library/Librarian

Question 12:

Why did you use the particular source you ranked as most frequently used?

- a) ☐ Familiarity
- b) ☐ Confidence in the source
- c) ☐ Ease of use
- d) ☐ Has the information I use most often
- e) ☐ Convenience
- f) ☐ Other (please describe)

Question 13:

Where do you obtain/consult print resources? (Please check all that apply)

- a) ☐ Own collection of books and journals
- b) ☐ Professional organisation
- c) ☐ Colleague

- d) ☐ Library
- e) ☐ Other (please describe)

Question 14:

Where do you access Internet/web resources (please check all that apply)

- a) ☐ at home
- b) ☐ at work
- c) ☐ library
- d) ☐ other (please describe)
- e) ☐ don't use the Internet

Question 15:

What Internet-based tools do you use?

- a) ☐ Medical databases (e.g. PubMed, Cochrane)
- b) ☐ Chiropractic or CAM databases (MANTIS, Index to Chiropractic Literature)
- c) ☐ Online journals
- d) ☐ Books online (including textbooks)
- e) ☐ Search engines (e.g. Google, Yahoo)
- f) ☐ "Gateway" sites (e.g. National Library of Medicine)
- g) ☐ "Open Access" sites for journals etc
- h) ☐ Email

Question 16:

Which of the following are barriers to using the Internet to you?

(please check all that apply)

- a) ☐ Difficulty in searching
- b) ☐ Lack of time
- c) ☐ Connection/software problems
- d) ☐ Too much information
- e) ☐ Information not available
- f) ☐ None of the above

Question 17:

How do you evaluate the information you find for accuracy and reliability? (please check all that apply)

- a) ☐ it is from a source I am familiar with and trust
- b) ☐ it is from a reputable journal
- c) ☐ it is recommended by other professionals
- d) ☐ I look at the content and citations
- e) ☐ it fits in with what I already know
- f) ☐ I look at the author's or institution's credentials
- g) ☐ Don't bother

Question 18:

How confident do you feel about information you collect?

- a) ☐ Very confident
- b) ☐ Reasonably confident
- c) ☐ Satisfied
- d) ☐ Not very confident
- e) ☐ Not confident at all

Part II – Demographics

Question 19:

- Are you
- a) ☐ a student of the NZ College of Chiropractic
 - b) ☐ a registered chiropractor

Question 20:

If you answered b) to Question 19, how long have you been in practice?

- a) ☐ 5 years or fewer
- b) ☐ 6-10 years

c) ☐ 11-20 years

d) ☐ more than 20 years

Thank you for taking part in this survey.

If you would be willing to take part in a further short discussion session (approx. 1 hour), please tick here:

☐

and please provide your preferred contact details below.

The time and place for these sessions will be arranged to suit participants.

☐

If you would like to receive a summary of this research when it is completed, please tick here and provide an address (email or post) to which it may be sent.



Information Sheet

Research project: The information needs of complementary health (chiropractic) practitioners and students.

Researcher: Helen Bennett

Dear Participant:

I am a Masters student at the Victoria University of Wellington, and also Librarian at the New Zealand College of Chiropractic, studying for a degree in Library and Information Studies. As part of this degree I am undertaking a research project leading to a minor thesis, and the University requires that ethics approval be obtained for any research concerning human participants.

The study is concerned with investigating why and how complementary health professionals access information, their sources and the uses to which it is put. I hope that the information gained will assist in the development of services to support chiropractic education; and I would really appreciate your assistance with this project.

This study will have two stages of data collection: survey questionnaire and a group discussion (focus group). Your participation would involve filling in a short questionnaire, and if you are interested, taking part in a short discussion session.

The questionnaire should take only about 15 minutes to complete, and can be returned to me in the stamped addressed envelope provided, directly to me in person or faxed to the number below. If you are willing also to take part in the short (approximately 1 hour) group discussions, this will be at an agreed time suitable to participants.

Your returning of the questionnaire will indicate your consent to participate in the first stage of this study and it will be impossible to withdraw your form once it has been received by me. If you would like to participate in the second stage (group discussion), please sign the attached consent form and return to me. As indicated on the Consent form, you may withdraw from this stage of the study up until the day following the discussion. If you do your contributions to the discussion will be disregarded and not included in the final analysis.

All information collected in this research will be treated confidentially and will be reported in such a way that no individuals will be identifiable and no statements will be attributable to any given individual. All materials will be sighted only by me, and by my supervisor at Victoria University of Wellington.

The final dissertation will be submitted to the School of Information Management and be lodged in the University Library; all other material will be destroyed at the end of two years, as required by the University. This research may also be published in professional literature or presented at conferences.

If you would like more information, or have any questions, please contact me on (telephone and fax) 09 523-0546, 027 602 5617 or by email to hbennett@ps.gen.nz.

Ms Brenda Chawner, who is supervising this research, may be contacted through Victoria University of Wellington at the School of Information Management, ph (04) 463 6868, or email Brenda.Chawner@vuw.ac.nz

Helen Bennett



Consent to Participation in Research

Title of Research Project:

The information seeking needs and behaviour of complementary health (chiropractic) practitioners and students

If you have read the Information Sheet attached and have decided to participate in this project, please read the following statements and sign the form below:

- ☐ I understand that my participation in this survey is voluntary and that I have the right to withdraw my participation or consent up to one day after the date of the meeting
- ☐ I understand that my personal privacy will be maintained in all written and published data resulting from this project, and that any data I provide will not be used for any other purpose or released to others without my prior consent
- ☐ I understand that all notes from the discussions will be treated confidentially and will be destroyed 2 years after the completion of the study
- ☐ I have been offered the opportunity to ask questions concerning this research and to have them answered

I have read the information provided and I consent to participate in this study.

Signature of Participant
Date

Signature of Researcher
Date