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Trends and patterns of use of CAM (Complementary and alternative medicine) among senior nursing students

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2006-11-17T12:36:43Z
http://hdl.handle.net/10539/1873

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CHAPTER ONE: INTRODUCTION

1.1 Background to the problem

The use and teaching of alternative therapies is a growing trend worldwide. It is used for health maintenance, disease prevention, and the amelioration of some disease problems, particularly chronic insoluble problems, stress, and pain. South Africa, in February 2001, became a world leader when legislation [128] was passed promoting ten complementary and alternative medicine (CAM) therapies into professionalism. Although Traditional African Medicine (TAM) is not listed among the ten, it is also important in this country, as "between 70% and 80% of people in Southern Africa continue to consult traditional healers" [34](pp.166-167). There is concern that uneducated concomitant therapy or self-medication may cause problems[7]. Aromatherapists, massage therapists, reflexologists and other CAM therapists without a medical, physiotherapy or nursing training are often unaware of the possibilities of drug interactions and body mechanics. Conversely, nursing and medical staff who are untrained in alternative substances may themselves not be able to advise and manage health care appropriately if their patients choose to use these therapies.

Given the above premises, it may be helpful to include some aspects of CAM therapies into future nursing curricula. It is believed that the use of such therapies could be a positive development in nursing care.

1.2 Statement of the problem

There is a growing use of many different CAM therapies worldwide, with scientific research into some of these. There is a documented widespread use of TAM therapies amongst the poorer indigenous communities of South Africa. We do not know which CAM/TAM therapies are being used where, the full extent of their use, what sorts of people are using them, the level of their knowledge of either these therapies or of general health matters, or of the possible interactions and health implications involved.

The question of how widely and which of these therapies may be being used in South Africa is too wide to address in its entirety at this level of study. As nurses are on the front-line of health-care and interact daily with people, giving advice and taking medical histories, it was felt that it would be useful to begin by establishing the trends and patterns of use of CAM (including TAM) among senior nursing students. They are the nurses of the near future, and may be more exposed to/willing to try out or learn about new therapies, as they are still in their formative years as health-care professionals.

1.3 Research purpose

The purpose of this study was to determine the trends and patterns of use of CAM among senior nursing students. Nurses' personal health-seeking choices and behaviours were assessed to determine whether their personal use and knowledge of allopathic or CAM treatments had any effect on their tendency to recommend or to want to practice alternative treatments within their nursing practice. From this, recommendations could be made for inclusion of some or all of these subjects into nursing curricula, at the levels

deemed most appropriate, as well as recommendations regarding further study of aspects of CAM use.

1.4 Conceptual framework/theoretical framework

Because the use of alternative therapies is an emerging field in nursing, no conceptual or theoretical framework was developed or used for the study. Instead, close attention was paid to operational definitions of the questionnaire and to the set objectives.

1.5 Research objectives

In relation to the study purpose, the following objectives were formulated:

1.5.1 To establish the health seeking behaviours of senior nursing students for the last 12 months.

1.5.2 To establish the type of health care sought for these problems, for example allopathic care only; allopathic and CAM care; CAM care only.

1.5.3 To establish which types of CAM care are used, if they are used.

1.5.4 To determine the students' intentions to practice CAM therapies within nursing practice once they are qualified nursing sisters.

1.5.5 To determine the students' intentions to refer patients/clients to CAM practitioners outside of their nursing practice once they are qualified nursing sisters.

1.6 Significance of the problem

In affluent quarters, there is an increasing use of CAM. There are suggestions that it may be due to disillusionment with orthodox medicine, particularly the practitioner-client

relationship; and because the advent of managed care and other economic measures seem to reduce the quality of service experienced [80](p.139). Managed care is becoming daily a more prevalent factor in our private hospitals and other medical care settings. Many of the medical aid companies [66](pp.12 - 13) feel economically constrained to offer benefits only in partnership with managed care. Among the poor in this country, on the other hand, there is great reliance on traditional forms of medicine, as this is the most available, acceptable, and affordable care they can find [34](p.161).

1.7 Nomenclature and abbreviations

1.7.1 AHPC: Allied Health Professions Council: As established by Act no 63 of 1982 [as amended], the Allied Health Professions Act.

1.7.2 Allopathic (conventional) medicine: Those branches of medicine that the West recognizes as scientific medicine. This includes all branches of medicine and dentistry taught in our medical schools, pharmacology, nursing, physiotherapy, radiology, occupational therapy, logopaedics, dietetics and nutrition as taught in the medical schools, and all other treatment of this nature.

1.7.3 CAM (Complementary and Alternative Medicine): Therapies not currently recognized by allopathic medicine, which are infrequently taught in South African medical schools but increasingly taught in medical schools in some first world countries.

Operationally, three broad categories of CAM have been identified.

1. The ten therapies that are now recognized in South Africa by Act no 63 of 1982 [as amended], The Allied Health Professions Act. These are:
    - Ayurvedic Medicine
    - Chinese Traditional Medicine (TCM) and Acupuncture
    - Chiropractice
    - Homeopathy
    - Naturopathy
    - Osteopathy
    - Phytotherapy (Western Herbal Medicine and Herbalism)
    - Therapeutic Aromatherapy
    - Therapeutic Massage Therapy
    - Therapeutic Reflexology
2. Traditional African Medicine (TAM), Multivitamin and Nutritional therapy, Shiatsu, and Unani Medicine, important to many people in our society, though not yet legislated in the above Act.
3. Other therapies which respondents may use, which are not included in the above.

1.7.4 Senior Nursing Students: Senior nursing students who are in their third or fourth years of study in a diploma or degree course leading to registration as a Nurse (General, Psychiatric, Community Health) and Midwife. Practical considerations lead to the operational use of such students at recognized nursing colleges or universities in Johannesburg.

1.7.5 TAM (Traditional African Medicine): Loose term used for the therapies employed by some of the original inhabitants of this land, including forms of herbalism, shamanism, and combinations of these two. More usually thought to belong to the medicine of the descendents of the Bantu language groups of migrants, particularly the Nguni/Zulus; though there are also relics of TAM used by the San and Khoi Khoi peoples once indigenous to the south-western areas of Southern Africa.

1.7.6 TCM (Traditional Chinese Medicine): Accepted term for the many therapies practiced by practitioners of traditional Chinese Medicine, including a very extensive plant, animal, and mineral based pharmacopoeia (more than 6 000 entries), acupuncture, shiatsu, medical qi gong, dietary advice, and other forms of treatment [9,10,11].

1.7.7 WHO: Accepted abbreviation for the World Health Organization.

1.8 Outline of the report

The literature review will be conducted in Chapter Two. In Chapter Three, the research methodology is explained. In Chapter Four, results of the study are presented with discussion. Finally, I draw my conclusions and make recommendations in Chapter Five.

1.9 Summary

This chapter has introduced the subject of this research report. The background to and significance of the problem was presented. The problems of the unsupervised,

unregulated and unschooled use of CAM therapies and their possible interactions with western medicine were mentioned. The research problem was outlined, and the research purpose and objectives were set forth. The major terms were defined, and an outline of the chapters to follow was given.

In Chapter Two to follow, a detailed literature review will lay the foundations for the study.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction to the chapter

This chapter presents a truncated and mostly tabulated literature review. Important areas in the literature were determined to cover subjects closest to the nature of this study only. These have been divided into the following sections: global perspectives on CAM usage, including usage in Southern Africa; introduction to the problems encountered with researching CAM therapies; an introduction to the problems concerning the misuse of and interactions of CAM therapies with allopathic therapies; and the global trends on incorporation of CAM into Nursing Curricula.

It must be emphasized that the existing literature on CAM therapies is far wider than this. Many hundreds of studies have been conducted overseas on the clinical use of various CAM modalities by nurses and other health professionals. The researcher is most aware of the studies conducted on the modalities which most interest her, therapeutic aromatherapy, therapeutic massage therapy, and therapeutic reflexology. These studies, important though they are, are not directly relevant to the research in hand, and were not reviewed.

The reader is advised that the augmented Harvard Style of citation has been used throughout the study, as presented in the Style Guide for Theses, Dissertations and Research Reports, Faculty of Health Sciences, 3rd Edition, 2000, of the University of theWitwatersrand, pp.18-19. This style was used rather than the Harvard style, as there were so many citations from the same authors in the same years, that the Harvard style

proved too cumbersome to use, particularly when constructing an overview of the therapies used globally and in Southern Africa. Dates are therefore omitted from the citations, and included in the references.

2.2 Global perspectives on CAM usage, including use in Southern Africa

The World Health Organization is working on a strategy to assist countries in regulating the use of CAM to make its use "safer and more accessible to [the world's] populations, *and sustainable*"[149](p.9)(italics mine). It is reported that more than one-third of the population in developing countries lacks access to essential medicines. In that light, "the provision of safe and effective Traditional Medicine/Complementary and Alternative Medicine (TM/CAM) therapies *could become a critical tool to increase access to health care"* [149](p.9)(italics mine).

There is a large and growing corpus of research overseas on the use of various alternative therapies in nursing practice and other allopathic spheres. Areas from Intensive Care Units to Community Care are benefiting. Profound shifts have been noted over the years. In America in 1993 CAM therapies were defined as "not being taught widely at … medical schools" [48](p.246). In 1998 "the majority of US medical schools now offer courses on alternative medicine" [47](p.1569). In 1993, "the frequency of use of unconventional therapy in the United States [was] far higher than previously reported"[48] (p.246). Nearly 66% of those who used some form of unconventional medicine did so without any supervision [48](pp.248, 251). Almost 90% of responders who used CAM did so without the recommendation of their medical doctor, and more than 70% of these did

not inform their medical doctors of their CAM use [48](pp.249-251). Although no blame was assigned to either side, this lack of doctor-patient communication was identified as problematical, because "the use of unconventional therapy, especially if it is totally unsupervised, may be harmful" [48](p.252). By 1998, "alternative medicine use and expenditures had increased substantially…", and this increase was due to more people using it rather than to a higher usage by those who were already using these therapies in 1990. Most of the other findings were similar to the previous study, including the "don't ask and don't tell" pattern regarding disclosure of CAM to medical doctors. Once again, this was viewed as problematic in that "an estimated 15 million adults [were in 1997 in America] at risk for potential adverse interactions involving prescription medications and herbs or high-dose vitamin supplements" [47](p.1575).

In Southern Africa too, there has been a shift in the public mindset towards the use of CAM therapies. Van Velden [139](p.40) argues that this is due to the fact that medicine has not had greatly spectacular progress in the management of chronic and degenerative diseases. In addition CAM therapies and practitioners are more holistic, focus more on prevention and on stimulating internal healing; and they integrate underlying causes and deeper possible meanings of ill-health patterns. This is important, as it is far closer to the indigenous views of health, as expounded for example by Maelane [90], than allopathic medicine, and thus psychologically more accessible.

It is important to acknowledge that the trainees of TAM programs traditionally have been subjected to a long and obedient course of growth (rather than academic rules of study) in

an emotionally supportive environment. A specific culture of service and a deep knowledge of herbs and other forms of medicine is inculcated and nurtured [102]. This is often, to the researcher's observation and concern, not the case in this "new age" of "instant CAM therapies and therapists". People (particularly westerners not previously trained in allopathic disciplines) can quite quickly become self-acknowledged (and sometimes media-acclaimed) health or psychological "experts" without either years in medical/other allopathic schools, or years in a bush school for Sangomas and other healers. This is bad news for traditional healers and for ethical CAM therapists, as well as the public and allopathic professionals.

Allaire, Moos, and Wells[3] reported in 2000 that some 93.9% of certified nurse-midwives in North Carolina recommended the use of CAM to their pregnant patients in the previous year. Altogether 57.3% recommended CAM to more than 10% of their patients. Herbal medicine was most highly recommended, together with massage therapy, chiropractice, acupressure, mind-body interventions, aromatherapy, homeopathy, spiritual healing, acupuncture, and bioelectric or magnetic healing therapies.

The two studies by Eisenberg et al [47,48], and the study by Allaire et al [3] reported above represent the tip of an iceberg. Due to lack of space, support for use of therapies in other readings is presented in the form of a table. The table is based on the "Classification of the National Center for Complementary and Alternative Medicine (United States of America)" table presented in Dossey[43]. The clarity of the grouping of CAM therapies in this table was the reason for largely adhering to its original format. Additional categories

were entered when reading supported this, particularly in the case of therapies used in Southern Africa. Other changes were made so that the table is supportive of literature read, and easily understandable in the Southern African context.

Much of the information regarding the use of alternative therapies in Southern Africa is gleaned from a rapid survey of back-issues of the South African Journal of Natural Medicine. It has also been informed by personal experience gained working in various holistic settings with four medical doctors who have specialized in various aspects of CAM and work both medically and "holistically". The word "holistic" is presented here in inverted commas, as the researcher believes that most doctors do try to the best of their ability to work holistically, but most doctors do not have the training or mindset to follow CAM-defined trends of "holism". Some CAM definitions of holistic practice by various medical doctors who include CAM therapies in their practices follow. Dr Bernard Brom[33] regards "holistic practice" as "holding close to the spirit of healing which is invisible, intangible, and even immeasurable; and can be reached directly only through experience". Dr Alta Smit is supportive of this definition as being intangible and [presently] immeasurable when she says that CAM methods may "[pick up] disease … still at a non-cellular level … [that is not yet] picked up on blood tests or in x-rays" [126]. The focus ceases to be what can be empirically validated by the five known senses, and the usual limits of scientific endeavour. It embraces the whole experience of the human being in the pursuit of total health.

Table 2.1 Brief overview of popular CAM global use, including use in Southern Africa. (The numerals are the references supporting CAM therapies used by nurses and other allopathic practitioners in the literature, additional to the list presented by Dossey [43] as CAM therapies recognized and being used in the U.S.A).

CAM Therapies practiced (as listed by Dossey [43]), and augmented.	**U.S.A.**	**U.K. and E.U**	**Australia**	**Southern Africa**
Alternative Systems of Medical Practice (alone/in addition to medicine/other allopathic practices)				
Acupuncture		Belgium[104]		55,56,57,58,59
Anthroposophy				39,40,41
Ayurveda				
Community Health Care Practices				8,16,24,26,29,30,31
Environmental medicine (pollution to geopathic stress, feng shui and others)				49,50,52,85,108
Flower essences				84,106,122,137
Holistically enhanced dentistry				114,150
Holistically enhanced midwifery				87
Homeopathy		Belgium[104]	72	86, 135
Iridology				71
Latin American traditional medicine				
Native American traditional medicine				
Natural products				
Naturopathy				
Past life therapy (psychotherapy)				62,102,121
Shamanism (including Sangomas and "sieners" in Southern Africa)				
"Spiritually integrative medicine"				2,23,25,27,32,33, 70,125,126,142,146
Tibetan medicine				9,10,11,145
Traditional oriental medicine/TCM				46
Unani/Tibb medicine				135
Bioelectromagnetic Applications				22
Aura-soma and colour therapy				51,126,129,147
Bioenergetic measuring/healing				
Blue lights				
Coloured lights/artificial light therapy				
Electro-acupuncture				
Electro-magnetic fields				
Electro-stimulation devices				
Magneto-resonance spectroscopy				
Magnetotherapy				Personal *
Neuro-magnetic-stimulation devices				
Radiesthesia (medical dowsing)				

CAM Therapies practiced (as listed by Dossey [43]), and augmented.	U.S.A.	U.K. and E.U	Australia	Southern Africa
Diet, Nutrition, and Lifestyle Changes				
Diet change				Most refer [78]
Exercise and movement				[95] and ** [13,15,117,118,138]
Food as a form of herbal medicine				
Food problems and food solutions				[116,120]
Gerson therapy				[53]
Hypervitamination treatment				[75,76,77,96,143, 151]
Hormones used as medical therapy				[99]
Indigenous herbal remedies (as found in Southern Africa)				Many refer
Indigenous natural products (as found in Southern Africa)				[18]
Lifestyle change				[64,65,97,130]
Macrobiotics				Most refer [134]
Neutriceuticals, sterols, sterolins				[4,19,42,119,132, 133]
Nutritional byproducts				[20,94,95,109,119, 120,132]
Nutritional supplements	[80]		[72]	[5,123,124,135]
Raw foods and juices as treatment				
"Super herbs", enzymes				Personal experience, & *** below
"Super-nutritional" practices				
Water therapies and water fasting, detoxification diets and therapies, colon hydrotherapy/cleansing.				
Herbal Medicine				
African American				[62,121]
Khoi Khoi "Bossiedoktors/ kruiedoktors" (not same as "sieners")				
Latin American				
Native American				
Phytotherapy (Western herbalism)	[80]	France[104]	[72]	[93]
Traditional African medicine (TAM)				[102]

CAM Therapies practiced (as listed by Dossey [43]), and augmented.	U.S.A.	U.K. and E.U	Australia	Southern Africa
Manual Healing				
Acupressure				
Alexander therapy				12
Bates eye method				84
Biofield therapy				
Body Alignment Technique and Body Talk Systems				88
Chiropractice	80			
Cranio-sacral breathwork				61
Feldenkrais method				
Healing presence				
Indian Head and Neck Massage				44
Massage Therapy	80,89			
Osteopathy				
Reflexology	89			144 and **** below
Rolfing	92			79
Therapeutic Touch (various methods)				
Trager method				
Zone therapy				
Mind-Body Control				
Art, dance, and music therapy	80		72	98,113,140
Autogenics and biofeedback				
Cognitive therapy				
Counselling therapy				
Goal setting and contracting				
Guided imagery	80		72	
Humour therapy				
Hypnotherapy	80		72	100
Journaling				
Listening and focussing skills	73		72	
Meditation and flotation tanks	80		72	115,148
Play therapy			72	
Prayer	80			
Psychotherapy				
Relaxation techniques				
Support groups				
Yoga and effective breathing				37,38

CAM Therapies practiced (as listed by Dossey [43]), and augmented.	U.S.A.	U.K. and E.U	Australia	Southern Africa
Pharmacological/Biological				
Antioxidization treatments Aromatherapy (restricted for use by MD's in France, and Heilpraktikers/ naturopaths in Germany, *in theory*) Cell treatments Chelation therapy Metabolic therapies Oxidization therapies (oxygen, ozone, and hydrogen peroxide therapy, the latter often intravenous use)	35,80	Belgium[104] France[104] Germany[104]	72	101,110 and ***** below 44, & personal experience
Price and Price[104] in addition report that 80% of population of Norway use CAM therapies of unspecified kinds (p.286); there is a high but unspecified use of CAM in the U.K., including practice of unspecified CAM therapies in hospitals where each hospital board decides individually what may be used, and by whom (p.289-294); and that in Israel there are several complementary medicine hospitals (p.301). *Personal experience: Dr Iqbal Badat, Unani Medicine Practitioner, Homeopath, Naturopath, Magnetotherapist, was completing his Ph.D. regarding the use of Magnetotherapy on orthopaedic patients at Groote Schuur Hospital, when I studied Indian Head Massage with him in 1998/1999. **Media report: Kadalie [67] reports on a community garden to improve AIDS and tuberculosis sufferers' outlooks both nutritionally and through combating such painful sequella as oral thrush using cultivated herbs and home-made therapeutic oils. ***Personal communication: In rural areas, the practice of "rigging up soap and water bucket and hose enemas is still often used" (L. Fakude, Department of Nursing Education, University of the Witwatersrand, Johannesburg, 2004). ****Community projects: Projects are being carried out by reflexologists in radiology wards, pediatrics burns units, and other centres, as reported by Viall[144]. *****Community projects: Projects are being carried out by aromatherapsts in haematology wards, psychiatric hospitals, and community places such as police stations (Booklet issued by the Aromacare branch of the now closed Aromatherapy Association of Southern Africa)				

2.3 Suitable methods to research CAM therapies, with associated problems

Brom [33] has asserted that natural medicine "is not just about using natural remedies, but mostly about the experience, the changed point of view". It is "a medicine in which doctor and patient [or nurse or therapist and client, researcher's insertion] try to make sense of the mystery of the life they have chosen to share together through the

consultative process". As such, it might be difficult to study given our present tools. Gerber [54](pp.1-16) states there is little point in trying to use Newtonian science principles to research energetic forms of medicine, which have far more complex views of physiology and healing than orthodox medicine. Most CAM therapies employ whole/natural substances, therefore complex substances, if they employ them at all. Brom [21] points out that it is difficult to "try to identify the effects of a particular substance", and even more so to identify complex mixes of them. This is further complicated by the roles played by synergy and individual reactivity to substances.

Some CAM substances, such as aromatherapy oils, are not as easy to administer "blind" as allopathic medicines. Aromatherapy oils are highly aromatic. Synthetic aromas create effects, and are implicated in the increase of sensitivity reactions and other unpleasant side effects [104](p.309). Therefore they could not ethically be used as "placebos". Aromatherapy oils and herbs are much more complex than most orthodox medicinal substances. The simplest of the oils is Litsea Cubeba, which contains about 50 distinct phytochemicals. When the researcher started aromatherapy, it was thought that pure rose oil (Rosa Damascena/Centifolia) had about 500 distinct phytochemicals. Today that figure is over 1000, and rising. Although there is an indication of what each individual chemical can do physiologically, in synergy they often act differently. In nature, chemotypes vary from year to year and area to area. This is often seen as a problem by allopathic toxicologists [7]. Alternative practitioners on the other hand, believe that this is a useful trait: that natural medicines are capable of "evolving" in response to

the evolutions of the fungi, viruses and bacteria that attack our bodies and the plant and animal bodies that provide these medicines. The original "smart medicine"?

These are the problems pertaining to therapies using complex but still "chemically dissectable" substances. How can energetic treatments be properly researched, when they operate at levels too sophisticated/high for modern measuring equipment? It appears that while scientific exploration of all CAM therapies is needed, a science still has to be developed that can adequately test many CAM therapies. As Reed, Pettigrew, and King[107] (pp.137-138) have stated, we need to be sure that we know "which investigation method is best?" and "which paradigm or approach is most appropriate to investigate the specific research question?". These questions and problems have been raised since an unfamiliarity with the research methods that may be used and the problems encountered in designing research methods for CAM therapies are often stumbling blocks for allopathically trained researchers, students, and practitioners wishing to investigate and thinking of using CAM therapies. When it is thought that CAM therapies are unresearched and unresearcheable, investigations into healing modalities that may be useful are often blocked psychologically.

2.4 Overview of problems of misuse and interaction with CAM therapies

Untrained and unregulated use of CAM therapies may lead to health problems. The toxicology literature is huge and growing. Due to the nature of the research, the overview pertains only to CAM substances, not to non-substance-using CAM therapies. The major problem with CAM therapies as a group, not only those using substances, is

the tendency for some uninformed and "overzealous health practitioners…[to] warn [clients] to avoid orthodox treatments for fear of toxic side effects"[58]. A very few of the toxicological/interactive aspects of CAM substances are highlighted in tabular form.

Table 2.2 Brief supported overview of some problems regarding the misuse of CAM substances. (The numerals are references to the highlighted problem in the literature).

Problems highlighted	**Supporting literature**
Toxic overload and sensitization	30,131
Uninformed ingestion or use of poisonous substances, see also Appendix 1	131
Use of safe substances (even food)in situations when user doesn't know about dangerous interactions with pre-existing medical conditions or medications, see also Appendix 2	68,69,74,78,83,91,131
Poisoning/liver destruction by hypervitiminosis and ill-informed use of herbal remedies	141
Professionals (e.g. pharmacists) do not have time to learn about new therapies that their clients demand, so can't caution them	74

Health professionals, never mind the general public, operate with a blithe disregard of the fact that even fresh food and water are active and reactive chemicals, and are used as such by the human body. For example, sporadic and unpredictable or irregular eating of avocado pears, high in Vitamin K, plays havoc with clotting times of patients on anticoagulant therapy [91]. It has to be acknowledged that modern health professionals work with a plethora of synthetic and natural chemicals, the full interactions of which even the experts are not always aware. There needs to be a far greater pooling of and sharing of spheres of knowledge than presently exists. Safety must be searched for even beyond the stamps of approval that various chemicals get after double-blind trials are completed.

2.5 Global trends on the incorporation of CAM into Nursing Courses

Kreitzer, Mitten, Harris, and Shandeling [82] reported on the attitudes of faculty and students to the use of, and the expressed need for teaching of, CAM therapies within allopathic health schools. The study comprised 627 faculty and students employed or enrolled at the University of Minnesota. Nursing, medical, and pharmacology faculty staff and students were surveyed and compared. More than 50% of all respondents wanted more teaching of CAM subjects in their curricula, with nursing students being the most eager for this sort of teaching.

Universities in the United Kingdom, for example the Oxford Brooks School of Health Care [105]; the United States, for example the Tufts University School of Medicine [103]; and Australia, for example the La Trobe University, in Albury/Wodonga, teach CAM therapies in basic nursing or in specialist nursing courses. This may take different forms such as CAM palliative care, or Masters degrees in nursing that allow specialization in aromatherapy and sports massage as nursing subjects.

An interesting proposal has been put forward regarding what sort of CAM therapies should be included in nursing curricula, and how they should be included. Reed et al [107] (pp.133-139) cite as reasons for including these subjects in nursing curricula the following:

- Growing interest in and use of CAM therapies by health care professionals and public
- Higher income earners often use "modern CAM" and resent not having a choice
- Projected expectations of accelerated use of CAM in the future worldwide

- Likelihood that nurses educated currently will encounter CAM professionally
- Culture-sensitive care needs to be given
- There is a measure of governmental legitimacy for some therapies
- Incorporation of some of these subjects into medical courses
- Growing numbers of articles concerning alternative therapies in professional journals
- The training and mindset of alternative and allopathic professionals are very different. Student nurses cannot be expected to understand this new mindset without a reorientation in training

The experience in South Africa matches this.

- There is high use of TAM concurrent with their use of Western medicine [34](p.161)
- Since legislation of ten Allied Health Professions therapies, at least these therapies have recognition as mentioned above. More therapies will be in the process of completing their registration status probably in the near future, including TAM.

The suggestions given by Reed et al [107] for the inclusion of CAM therapies into basic nursing courses are as follows.

- All neophyte undergraduate nurses need to develop a multicultural sensitivity to CAM worldviews and other worldviews
- They should know the various categories of CAM therapies available locally
- They could have specific training in CAM therapies within the scope of nursing practice, not limited by license to other healthcare practitioners (such as doctors), regarded as somewhat mainstream, and which have some scientific evidence of safety

and efficacy [107](p.137). These could be taught in the ambit of electives or Continuing Professional Development courses.

- They need to be able to elicit and evaluate for safety their patients' use of CAM
- They need to know how to access information on CAM, including on the changing legal status of various therapies.

Reed et al [107] also give a number of useful suggestions for inclusion of CAM therapy research, CAM accountability problems, teaching staff reorientation, and teaching of CAM therapies into advanced nursing courses. This will not be reported on here, as it is not the sample covered by the current research report.

2.6 Summary

In this chapter, a review of some of the relevant literature has been conducted. Important areas in the literature were identified and presented, mainly in table form. The issues covered were global trends and patterns of CAM use, including emerging and existing CAM use in Southern Africa; problems encountered in research and misuse and interactions of CAM therapies and substances. Global suggestions on the incorporation of CAM subjects into nursing courses were also highlighted.

The research methodology will follow in the next chapter.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

Chapter Three sets out the research methodology followed. The research design, population and sampling techniques are presented. The research settings, data collection methods, instruments, and processes are set out. Measurement methods and ethical considerations are addressed.

3.2 Research Design

The researcher replicated aspects of the Eisenberg et al's [47,48] and Kreitzer et al's [82] studies to discover the trends and patterns of use among senior nursing students.

Eisenberg et al[48] conducted a nationally representative random household telephone survey in 1990 that accessed 1539 adults 18 years and older in 1990, the response rate being 67%. They limited themselves to the consideration of 16 unconventional therapies that were then not often taught in US medical schools. They asked respondents to identify serious and bothersome medical conditions, and both the medical and CAM care they used for this. The purpose was to establish prevalence of use, costs, and patterns of use of unconventional therapies. They found that 34% of the population used CAM in the past year, with 1/3 of these respondents making about 19 visits per year to an unconventional health practitioner at a cost of $27.50 per visit. Highest use was reported among non-black 25 - 49 year olds with relatively higher education and disposable incomes. About $13.7 billion were spent on this sector annually, $10.3 billion of this

being out of pocket. Other findings are compared and contrasted with my own findings in Chapter Four.

A follow up was done between 1990 and 1997 by Eisenberg et al[47] to detect any changes. 2005 adults of 18 years or older were interviewed telephonically; the research questions, methods, and therapies considered being comparable. The researchers found a 47.3% increase in total visits to CAM practitioners, a figure exceeding total visits to all US primary care physicians [47] (p.1569). This was at a cost of $21.2 billion, $12.2 billion of this being paid out of pocket [47] (p.1569), which also exceeded out of pocket expenditures for all US hospitalizations in this period. Once again, the other findings are compared and contrasted with my own findings in Chapter Four.

In 2002, Kreitzer et al [82] studied 627 faculty and students at the University of Minnesota medical, nursing, and pharmacy departments, with a response rate of more than 50% across all departments. The purpose was to determine attitudes of faculty and staff towards CAM in medicine, nursing, and pharmacy, within an academic health centre. More than 90% of faculty and students believed that clinical care "should intergrate the best of conventional and CAM practices and that health professionals should be prepared to advise patients about commonly used CAM methods". 88% of faculty and 84% of students indicated that CAM should be included in their school's curricula. The highest level of interest was expressed by nursing faculty. The research is discussed further in Chapter Four, in relation to my own findings.

The researcher chose to replicate the following aspects from these studies:

3.2.1 The types of medical/CAM care chosen for various health problems experienced, as this gives preliminary hard data on trends and patterns of use of CAM/TAM therapies in South Africa.

3.2.2 The levels of interest of students in studying/using aspects of CAM/TAM therapies, as this gives preliminary insight into the development of nursing curricula.

The researcher chose not to replicate the following aspects from these studies:

3.2.3 Financial aspects, especially claiming from medical aids, were omitted, as the Medical Aid societies in South Africa are still busy drawing up schedules for the inclusion of some of the newly legislated therapies.

3.2.4 The therapies and illness self-report categories used by Eisenberg et al [47,48] were altered to fit the reality that South Africa has legislated certain of these therapies, and that the research should therefore concentrate on these therapies, in addition to therapies widely used in South Africa, but not in the U.S.A.

3.2.4 Kreitzer et al's focus on attitudes [82] was determined by the Faculty of Nursing Staff to be too imprecise to determine faithfully at this level, and was omitted as explained in section 3.6.1, Evolution of the Questionnaire.

In the present study, a self-report survey was used to measure the trends and patterns of use of CAM therapies among senior nursing students. There were no control groups. A survey is "an extremely important source of data" in a previously fallow field [36](p.256).

Due to financial restraints, rural areas could not be included in the sample. This should be done at a later stage. It is proposed that a limited survey is the best way to start preliminary research into this unknown field, and that later surveys could profitably be done on a much wider spectrum of the population.

3.3 Population and Sample

The study population included all senior nursing students registered for a diploma or degree nursing program leading to registration as a nurse (general, psychiatric, community health) and midwife at three Nursing Education Institutions (NEI) in Johannesburg. The accessible population was n=204. Two hundred and two (202) at least partially completed questionnaires were received back. Of these, the final number of well completed questionnaires that could be used as the sample were one hundred and seventy four (n=174). A "well completed questionnaire" meant that all the relevant "yes" columns in Question 1 were completed, that this data was not invalidated by subsequent questions, and that they had finished all the questions and thus not abandoned the paper. "Not invalidated by subsequent questions" means for example that they did not say that they had suffered from 5 distinct health problems, indicate that they had seen a medical practitioner or CAM therapist for these problems, and then later answered a question that required them to state what care was sought by indicating that they had NOT sought this care.

Although demographic questions were kept to a minimum, as the researcher was not interested in the financial status, funding of the therapies being used, or rural or urban

background of the students at this level of research, the following rough population description can be elicited from a study of the names on the consent forms, and from visual inspection of the respondents in the classrooms. An overwhelming majority of the students, ±70%, were black, and at least ¾ of them were females. All of them will have been resident in Johannesburg and thus exposed to trends in the urban areas for at least two years, due to the location of their studies.

3.4 Research setting

Research was conducted in classroom settings in three NEIs in Johannesburg. Students were sitting in their usual lecture seats. In one case, the setting was a small classroom with individual chairs and tables. In the other three cases, large lecture halls with fixed student seats and rows of fixed writing surfaces formed the venue. Natural light and ventilation from large windows was present in three of the settings, and good artificial light and ventilation was present in the fourth. The pilot study was completed in late Spring 2003, and all the research data was collected within a period of a week in high summer of 2004 (one on 11 February and two on 16 February). The temperature was thus largely the same in all instances. Seats were uniformly hard and uncomfortable.

3.5 Data Collection

The measurement tool used was a self-administered questionnaire. This is the most suitable and cost-effective way to collect preliminary hard data, and as there is no in-depth exploration of the subject, interviews and focus groups were not called for. A combination of multiple-choice type questions, and short open questions were used. A

copy of the questionnaire is included in Appendix 3. The questions are presented separately in Chapter Four.

After permission to conduct the study was obtained from the Principals and Professors of the nursing schools and from the Department of Health, the researcher took copies of the information and consent form (Appendix 4) and the survey questionnaires to the NEIs. Contact was made with the identified teachers. The researcher was vaguely known to the students in the pilot study and one small group, and was formally introduced by the lecturers to the other two groups. In all these instances, the subjects were informed that the researcher was both a trained nurse and a registered therapeutic aromatherapist, therapeutic massage therapist, and therapeutic reflexologist. This counteracted the possibility that one but not another group might be influenced to choose these CAM therapies above others due to a feeling of "familiarity". The teacher and the researcher then jointly handed out the consent forms and questionnaires, working on opposite sides of the class. In the pilot study, the questionnaires were handed out at the end of a lesson, just before lunch break. In the research groups, questionnaires were completed around lunch time. Extraneous variables were thus made uniform.

The researcher explained the purpose and nature of the study, students were directed to the information on the back of the consent forms, and were informed that it was not compulsory to complete the questionnaire. It was emphasized that names were not to appear on the questionnaires, and that questionnaires and consent forms were to be handed to opposite ends of the lecture rows once completed to maintain subject

anonymity. Papers were not taken from the classrooms or discussed. The small size of the pilot group against the large sizes of the research groups was the only difference, and seems to have had an effect on the quality of questionnaire completion, as the pilot studies were generally more diligently completed particularly as regards the first five questions. (92% of every part of all these questions were completed in the pilot; the study respondents mostly only ticket yes or N/A if they had actually suffered an illness, and left most of the questions open so that they had to be inferred).

The forms handed out were collected, whether the students chose to fill them in or not. The consent forms were arranged alphabetically and filed. The questionnaires were marked as they presented with a number, ranging from 1 to 202, and filed. The researcher entered the data into the Excel program of her computer personally. There could have been no variations due to different researchers, or different data processors.

3.6 Measurement Methods

3.6.1 Evolution of the Questionnaire

An initial questionnaire was designed based on the questions reported on in the studies conducted by Eisenberg et al [47,48] and Kreitzer et al [82]. This initial questionnaire was tested on five adult family members, to determine length and readability, and altered according to their comments and suggestions. The questionnaire was then discussed with a small panel of nursing researchers and further amended. Major alterations were made after presentation to the Faculty of Nursing Staff, and receiving their written and verbal critiques. All references to "attitudes" and "beliefs" originally contained in the

questionnaires were removed. The wording of the questionnaire and the title of the research report proposed were reworked. It was felt that as "attitudes" and "beliefs" are difficult to measure and there are no accepted obtainable measuring scales for them in the field proposed by the researcher, that the survey should focus on trends and patterns of use only. Therapies that have been legislated in South Africa became the focus of the questions. Two meetings at the Department of Medical Biostatistics at the University of the Witwatersrand resulted in final changes to the questionnaire to make it more readable, and more easily computable.

3.6.2 Reliability

The researcher presented and collected all the questionnaires, and the answers were given by the subjects. Inter-rater reliability tests were therefore not needed. A test-retest reliability check was performed on the pilot group as follows. The test-retest period was at the beginning and end of a month, while students were in block. The product-moment correlation coefficient, Pearson's r, was calculated. This allowed the researcher to determine the relationship between the pretest and the posttest scores. The raw scores for this test were obtained by summing all the answers with a value of 1 (either "yes", or "major", "chronic", or a given or implied yes to an "n/a" answer, as suggested by the Medical Biostatistics Unit). Three sets of Pearson's r were calculated, which may be viewed in their entirety in Appendix 5. As the answers to questions 2 - 5 were often implied, and one questionnaire was badly answered both times, the researcher calculated the following scenarios. When all the answers were calculated, with only the five reliable subjects, a Pearson's r of 0.87 was obtained. When answers for only questions 6 - 14 (the

questions most useful to this research report) on only the five reliable subjects was calculated, a Pearson's r of 0.86 was obtained. When answers for only questions 6 - 14 using all 6 subjects was calculated, a Pearson's r of 0.83 was obtained. It was therefore decided that, at a level of r = 0.8, the questionnaire was reliable. As there was not much difference between the scores obtained using or not using the first five questions, it was decided that the first five questions would be retained in the final study. These questions were in any case designed to be less threatening, as a "factual lead in" to the more important and revealing questions.

The pilot subjects were asked at the end of the pretest to comment on the readablilty and understandablilty of the questionnaire. They found it both easy to read and easy to understand. The changes suggested in the original questionnaire by the pilot study students were the inclusion of a category for "infectious diseases" in questions 1 - 5, and the addition of a category "not applicable" in questions 6a, 6b, 7a, and 8a. These suggestions were incorporated into the final questionnaire.

The pilot group was purposely selected by virtue of their having the smallest number of enrolled students in the population. It was felt unwise to limit the number of subjects by randomly selecting a school for the pilot study, when the school concerned might have had a larger number of enrolled students available for study.

3.6.3 Validity

Content validity was achieved by basing the questionnaire on studies conducted by Eisenberg et al [47,48] and by Kreitzer et al [82], and on recent literature on the use of CAM therapies, particularly in Southern Africa. The evolution of the research instrument has been explained in detail above. Although copies of the questionnaires used by the cited U.S.A. researchers were not obtained, their reports were carefully studied, and the researcher tried to model her questions on the questions that might have generated the answers they gave.

3.6.4 Scoring

Scoring techniques were adopted on advice from the Medical Biostatistics Unit. A binary scale of 1 and 0 (or any numbers chosen) to represent Yes and No was suggested. Raw data were added initially using 1 for Yes (or Major, Chronic: the scale is represented in Appendix 6), 2 for No (or Minor, Acute, as above), 3 for "not needed for this question", and 4 for blank. An analysis of the first batch of data resulted in the elimination of data reading 4. If too much was blank, the respondent was deleted from the study. "Too much" means all or large parts of questions one to five not ticked at all, or that this data was invalidated by subsequent questions, as previously defined on page 26. Alternatively, the student had abandoned the paper by not answering the last page of or more of the questions, or whole questions within the body of the report that were required by their answers in question 1. If there were a few entries of 4 (less than 5), and the questionnaire was consistent, the data was inferred from related answers and entered accordingly. For the purposes of calculating the pilot study test-retest Pearson's r, the 3s

(N/A answers) were further converted into 1 (it is not applicable) and 0 (it is not "not applicable"). The researcher entered all data into the computer herself, eliminating any differences in the entering of data by different personnel. The researcher checked the entered data using summing techniques and visual checking, as explained in detail in the next chapter.

3.6.5 Level of Measurement

The research elicited descriptive data, mainly of nominal or ordinal measurement values. Numbers were assigned as explained above for entry into the computer. Where questions were open, any resulting answers were both given a measurement (1 for "did give something else" and 0 for "didn't give something else"), and entered into an explanatory column as a worded item.

3.7 Ethical Considerations

The completed self-report survey questionnaire, consent form, information sheet, and research proposal were submitted to the Committee for Research on Human Subjects (Medical) for ethical clearance before the pilot test was conducted. Permission was granted according to clearance certificate number M03-05-28. A copy may be found in Appendix 7.

Salient features of the research are as follows. There was no link between the personal socio-demographic data (names) on the consent form, and the anonymous self-report survey questionnaires. Information sheets contained the information that no prejudice to

marks or status of students would occur, and that no access to the information by any teaching staff of any institution included would be possible. In addition, the contact person and contact numbers of the Chairman of the Committee for Research on Human Subjects (Medical), and the advice that feedback would be given to volunteers at their request, was included. Students were further personally told before they started answering the questionnaires that their consent and continuing to take part in the study were entirely voluntary.

Permission was received from the offices of the Gauteng Department of Health on 05 September 2003, from the Assistant Director, Nursing Education and Training, to carry out research on the students in the nursing schools under her jurisdiction. Permission was obtained from the relevant University Heads and College Principals to conduct the study, telephonically in one case and written in two cases.

3.8 Summary

The research methodology was discussed in Chapter Three. The research design, population and sample were set out. The research setting, the data collection methods, instrument, and data entering processes were described. Measurement methods to ensure reliability, validity, and level of measurement were explained. The scoring methods and pilot study were mentioned. All ethical considerations and processes were explained.

The results of the study with discussion will be presented in Chapter Four to follow.

CHAPTER FOUR: RESULTS AND DISCUSSION OF RESULTS

4.1 Introduction

The purpose of this chapter is to present the results of the study and to discuss them in the light of the literature surveyed. An approach to the data analysis will be given. This will be followed by a presentation of the results of the study in written and pictorial form, with concurrent discussion.

4.2 Approach to data analysis

Data obtained from the questionnaires were entered into Microsoft Excel program by the researcher. The data was then checked manually and also by summing all parts of the answers. If the sum of any set of related figures was less than 174, the researcher checked the raw data and referred to the numbered questionnaires to correct and enter any missed entries. A first printout was obtained, and the data checked, specifically to exclude those responses with mostly blank answers represented by the number 4, as previously explained. A reprint was obtained, and the data analyzed from several angles by the researcher. Final sequences were entered into a new spreadsheet, from which all pictorial representations of data were generated. Data were ordinal and nominal in nature, requiring frequency tables and distribution graphs only.

Although a number of interesting areas for further study were raised by the data, correlation analyses, which the researcher would like to have carried out, could not be done due to the imprecise nature of the data obtained on the relevant questions. The

researcher worked through and used statistical models from two social statisticians: Bless and Kathura (1993) [14] and Runyon and Haber (1980)[112].

4.3 Study Results

The results of the study may be broadly grouped in three sections. Questions one to five addressed related "demographic-like" information regarding ill-health experienced in the previous 12 months, and the health-seeking behaviours elicited by the non-wellness experienced. Questions six to eight attempted to discover whether use of both allopathic and CAM therapies were being declared to respective practitioners, and if not, why not. Questions nine to fourteen attempted to elicit the extent of use, and which CAM therapies were being used, or would be used and referred to.

4.3.1 Question 1: Demographic information on illnesses suffered

The first question was designed to be a non-threatening lead-in question. It was expected that it would start the respondents thinking about what sorts of illnesses they experienced, or what levels of severity in the illness they experienced, would make them choose either CAM therapies or allopathic therapies. This was also addressed by Eisenberg et al [47,48]. This question was answered in all cases selected for the final data (N= 174). Most respondents only ticked "yes" if they had experienced ill-health, and left the "no" blank if they had not experienced ill-health. The "no" was filled in by the researcher by default. It exposed problems with the questionnaire not previously exposed by the pilot study. Interestingly, the original questionnaire did not have a category "no" until this was suggested by the Medical Biostatistics Unit for computer computational purposes.

Perhaps the questionnaire should have been left without a "no" anser, and the "no" inferred as in fact happened. The results of the first question are shown graphically below.

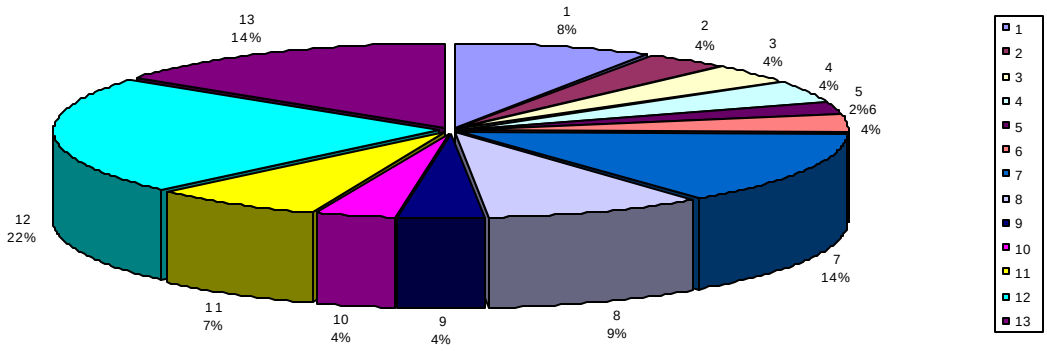


Figure 4.1 Analysis of illness categories reported on by respondents in the last 12 months.

Where:

1 = Operations	2 = Central Nervous System/psycho-emotional problems	
3 = Endocrine/hormonal	4 = Weak immunity	5 = Infectious diseases
6 = Cardio-vascular System, including lymphatics		7 = Respiratory
8 = Digestive system	9 = Urogenital system	10 = Musculoskeletal
11 = Skin/integumentary	12 = High stress levels	13 = Allergies suffered.

The largest categories of ill health reported are stress at 32%, allergy-related illnesses at 21%, and respiratory illnesses at 20%. These are followed by digestive system problems at 13%, operations at 12% and integumentary problems at 10%. The other categories revealed low levels of ill health: weakened immunity at 6%, central nervous system/ pscho-emotional, endocrine/hormonal system, cardiovascular system, urogenital system, and musculoskeletal system at 5% each, and infectious diseases at 3%. (The last figure probably exposes a weakness in the understanding of the instrument, because respiratory illnesses, weak immunity and infectious diseases should probably correlate better than

this. This last category, infectious diseases, was suggested by the pilot study group and included into the final questionnaire, and seems to have proved confusing). The reported figures look slightly different to the figures on the pie-chart. That is because the chart automatically adjusted the numbers to reflect an absolutely relative percentage out of 100%, whereas the figures reported above allow the fact that respondents can suffer variably, and from more than one illness. The absolute total of the figures given by respondents above is 142%. (This discrepancy will be apparent in all questions following where both absolute figures and charts are given).

These figures were reported differently in the literature, and for a different population (general North American public, not student-aged and study-category specific South Africans). In addition, Eisenberg et al's [47,48] two studies have slightly differently arranged categories. If one counts back problems, arthritis, neck problems, and sprains and strains as collective musculoskeletal problems, the American figure is much higher than the profile obtained in this study at 5%. If one counts headaches, insomnia, depression and anxiety as CNS/psycho-emotional problems, then the American figures are also much higher than those obtained in this study (5%). Likewise, high blood pressure at 11% is higher than the reported total CVS/including lymphatics in this study at 5%. The figures given by the respondents of this study for respiratory disorders was higher at 14% than the American response at 7 - 9%. Figures given for digestive ailments, allergies, and stress (compared to "chronic fatigue") were comparable. The figures given in the two studies reported by Eisenberg et al [47,48] are as appears overleaf:

Table 4.1 Summary of comparable results from the literature.

CONDITION	1990	1997	CONDITION	1990	1997
Back problems	19.9%	24.0%	Sprains or strains	13.4%	10.8%
Allergies	16.0%	20.7%	Insomnia	13.6%	9.3%
Fatigue	-	16.7%	Lung problems	7.3%	8.7%
Arthritis	15.9%	16.6%	Skin problems	8.0%	8.6%
Headaches	13.2%	12.9%	Digestive problems	10.1%	8.2%
Neck Problems	-	12.1%	Depression	8.4%	5.6%
High Blood Pressure	11.0%	10.9%	Anxiety	9.5%	5.5%

4.3.2 Questions 2 to 5: Level of perceived illness and help sought

The data received on questions two to five were limited in terms of real answers as opposed to "not applicable", due to the small sample size. It was decided not to present the data received from these questions graphically. They add little to the main argument, simply being further demographic information regarding the way the students see their illnesses. Had the data been more robust, the researcher wold have done correlational tests on the answers to confirm whether, if an illness was perceived as major or minor; or chronic or acute, made any difference to the type of health care practitioner they chose to use. Salient features can be summarized as follows:

Table 4.2 Tabular representation of answers to questions 2 - 5.

Answer to question	Raw score percentages	Raw score ranges
2: Illness suffered was major : minor : n/a	2% : 8% : 90%	96 Major 17 Minor
3: Illness suffered was chronic : acute : n/a	3% : 5% : 92%	7 Chronic 14 Acute
4: Visited your allopathic practitioner for the above	5% yes ; 5% no	90% not applicable
5: Visited your CAM practitioner for the above	1% yes ; 9% no	90% not applicable

From the above it can be seen that a greater percentage of the study sample would visit their allopathic practitioners than a CAM therapist for any illnesses. This is a marked contrast from the samples surveyed by Eisenberg et al [47,48]. These studies cite figures as high as 40% or 50% using at least one alternative therapy for ill health ("4 in 10 Americans", and "at least 1 of every 2 persons aged 35 to 49 years in 1997" [48] (p.1574). This may be because South Africa has not yet reached the same proportion of CAM users as first world countries. It may be because the study sample is biased relative to the general population because they are being taught the western allopathic view of illness and wellness with a "hidden agenda" against CAM therapies. The reader is referred to the researcher's argument in the literature review section 2.3, discussing the possible bias against CAM therapies because the allopathic student does not understand the different approaches to the research of these subjects. Alternatively, it may be because our cultural sample is different from the sample used in the United States study. Most of the researcher's sample (about 70%) are from a cultural group that may favour TAM above other therapies, and yet most of the therapies presented for consideration due to their registration status are CAM therapies more often practiced by affluent westerners: the groups surveyed by Eisenberg et al [47,48]. All three of these leads could profitably be developed as future research avenues.

4.3.3 Questions 6 to 8: Voluntary use of CAM and reporting such use

Questions six to eight covered voluntary use of and the reporting of the use of different modalities to the respective practitioners. The answers to question 6 can be presented as depicted over:

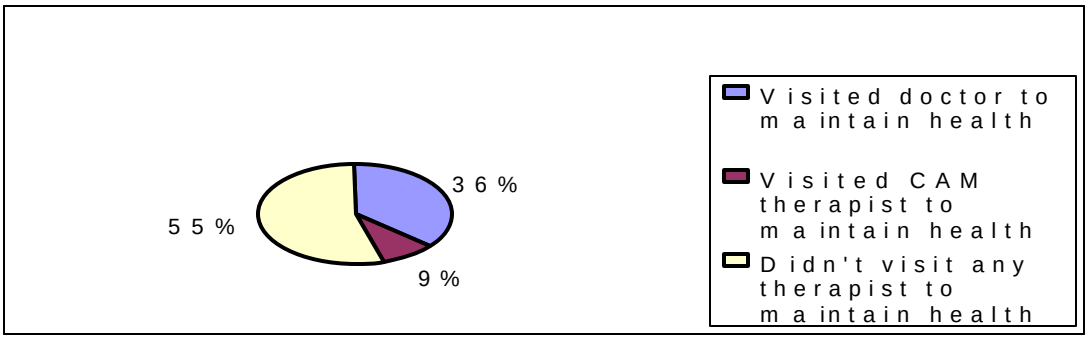


Figure 4.2 Analysis of well-subject "health maintenance" visits

From the above figure we can infer that, as in the question above, the nursing students were more likely to visit an allopathic practitioner than a CAM therapist to maintain their health, and that these figures were low. More than half the students visited no-one unless they actually felt ill. As above, this is quite different from the trends found by Eisenberg et al [47,48] (p.1575), who report that some 58% of the (English speaking) North American populations use CAM therapies "to prevent future illness from occurring, or to maintain health and vitality".

Question 7: When respondents visited both an allopathic practitioner and a CAM therapist, only 8% of them confessed to telling their allopathic practitioner that they were seeing a CAM therapist, as opposed to a little less than 30% of those surveyed by Eisenberg et al [48](p249-251). Reasons given for not telling the allopathic practitioner were various. "I don't know, maybe I wasn't asked"; "I saw no relevancy to do that"; "I just thought it was a supplement"; "Scared what he might think"; "Some doctors do not believe in alternative medicine"; "Due to cultural background, she would not understand or agree"; "Never thought of telling them", and "Didn't actually use the CAM therapy, but considered it".

Question 8: When respondents visited both an allopathic practitioner and a CAM therapist, only 9% of them confessed to telling their CAM therapist what medications and other allopathic therapies they were receiving. There were few reasons given for not telling the CAM therapist what they were using. These included "Because they criticize other medicines" and "I didn't use the medicines". (As it is unclear from the last response whether the respondent unilaterally decided to ditch prescribed medicines, this is an avenue for further exploration).

4.3.4 Questions 9 to 15: Trends in the current and future use of CAM modalities

Question 9: Overall some 10% of the sample (1% in the case of illness, and 9% in the case of health maintenance) used various CAM therapies for themselves. The highest percentages of use were for Multivitamin and nutritional supplements (12%); Traditional African Medicine, Herbalim, and Homeopathy (all 5%), and Aromatherapy (4%). Osteopathy and shiatsu were the only therapies which were not used at all. Under "other therapies/supplements", the following were mentioned: Multivitamins (many times); supplements(many times); african potato; spirulina(2); Slimming tablets; Headache pills/brufen/roacutane for skin treatments; herbal treatments; relaxation; church therapy; ukufutha (which the researcher has been told means a sweat hut to steam out respiratory troubles); steaming; herbs from the garden; and enema. Two commonly asked questions from all the student groups answering questionnaires were: "Are multivitamins and diets CAM therapies, I thought they were just normal?", and "What is the difference between herbalism and homeopathy?"

Question 10: Regarding the sources of their knowledge, the highest number, 45%, said that they know nothing about CAM therapies. Of those who knew something about CAM therapies, 36% gained their knowledge from the general media, 21% from professional literature, 17% from having ever used these therapies, 15% each from their home culture and from lecturers, and only 3% from outside lectures specializing in these subjects. The researcher expected that a much higher number would have learned from their home culture, given Bruce's [34] figure of 70% - 80% use of TAM therapies in rural South Africa. However, this figure does tally with the fairly low number of 5% of the sample who use TAM personally. It certainly points to further avenues of research, as it may highlight the effects of urbanization on traditional health practices and knowledge. There was no similar question asked in the literature for comparative purposes.

Question 11: The results of this question, exploring wishes to use CAM therapies as nurses, were fairly startling, given the low knowledge about CAM therapies and low personal use of CAM therapies. The results can be represented graphically as follows:

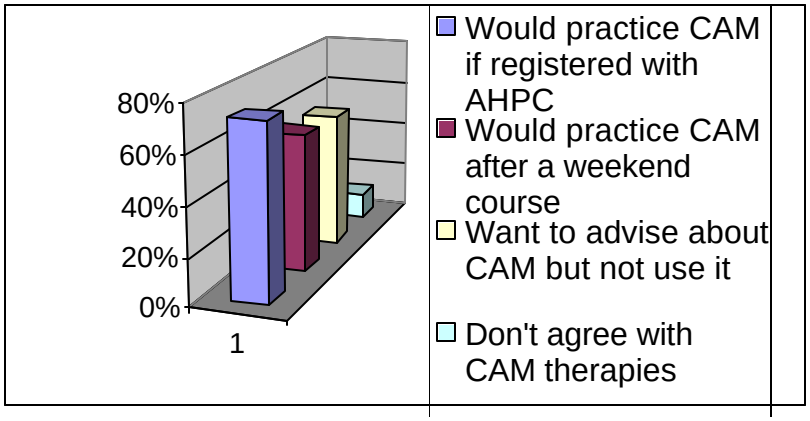


Figure 4.3 Analysis of type of training preferred to enable the practice of CAM therapies within nursing

Only 11% of the neophyte nurses said they would not like to learn about, practice or advise clients/patients about CAM therapies. A worrisome trend is that 58% of the respondents thought they might be able to practice a CAM therapy after only a weekend introductory course. Either the respondents have no idea what is involved in the study of CAM therapies, or they do not mind the thought of dangerous practice. About 73% of the sample would consider CAM practice if they were registered with the AHPC, and 57% would like at least to be able to give advice about CAM therapies to their patients. When we compare these results to the literature studied, the figures are similar given that the overseas researchers do not yet have registering bodies such as the AHPC to bring into the equation. In the study by Allaire et al [3], 93.97% of certified nurse-midwives recommended use of CAM therapies to their patients (this figure would be 89% extrapolated from the figures given above). In this study in Canada 57.3% recommended it to more than 10% of their patients (compared to 57% wanting to be able to give advice in this report). The researcher would have liked to correlate personal use of CAM therapies with intention to use CAM therapies in their practice later or to refer clients/patients to CAM therapists. The data were not robust enough to allow this, and this is another avenue for future research.

Question 12: Of the CAM therapies mentioned, the ones the respondents would most like to practice are: 68% massage; 67% multivitamin and nutritional therapy; 56% aromatherapy; 46% reflexology; 41% homeopathy; 40% herbalism, followed by the others. There were no categories that did not have at least 1% interest in them. This is fairly consistent with the literature. The categories preferred in the study done by Allaire

et al [3] were herbal medicine, massage therapy, chiropractice, acupressure, mind-body interventions, aromatherapy, homeopathy, spiritual healing, acupuncture and bioelectromagnetic therapies. The categories most chosen in the study done by Eisenberg et al[47] (p. 1572) were relaxation techniques, herbal medicine, massage, chiropractice, spiritual healing, megavitamins, and then others. The categories most popular among nurses in the study done by Kreitzer et al [82] were aromatherapy, chiropractice, herbal medicine, hypnosis and guided imagery, massage therapy, music, nutritional supplements, prayer and spiritual healing, and meditation.

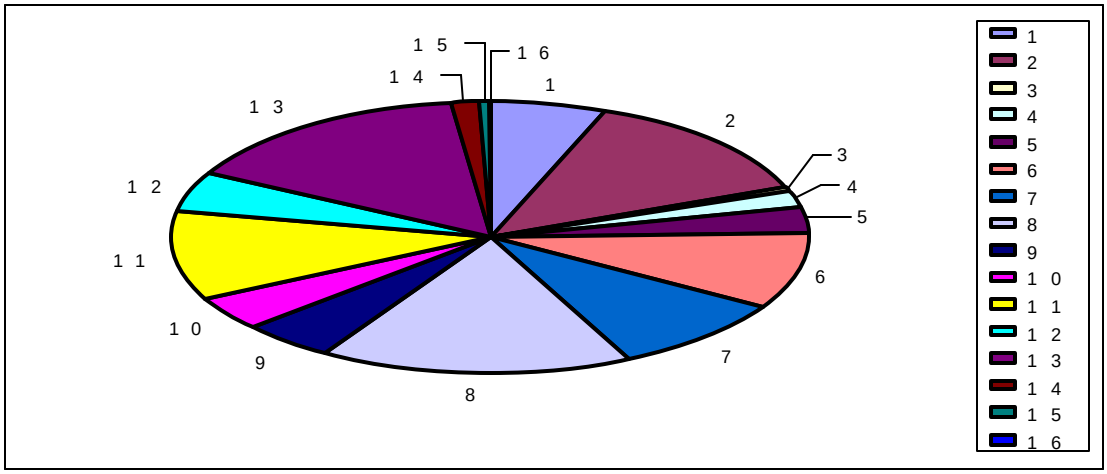


Figure 4.4 Analysis of CAM therapies most preferred for nursing practice.

Where:

1 = Acupuncture	2 = Aromatherapy	3 = Ayurvedic medicine
4 = Chinese Traditional Med	5 = Chiropractice	6 = Herbalism
7 = Homeopathy	8 = Massage therapy	9 = Naturopathy
10 = Osteopathy	11 = Reflexology	12 = Traditional African Med.
13 = Vitamins & Nutrition	14 = Shiatsu	15 = Unani Tibb medicine

16 = Other CAM therapies not mentioned above

Question 13: A much higher percentage of respondents were willing to refer their clients/patients to CAM therapists that would have been suggested by their knowledge of and self-use of the subject. This may be illustrated as follows overleaf:

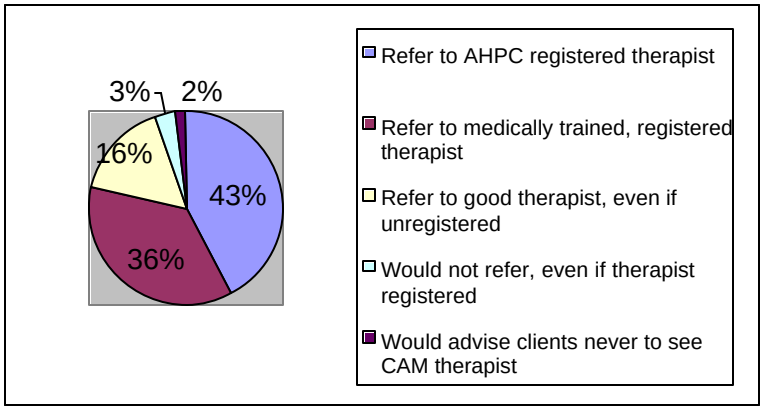


Figure 4.5 Analysis of CAM therapists to whom respondents would refer clients/patients.

Question 14: The therapies that the respondents were willing to refer clients to were exactly the same ones that they were most likely to use in their practices. 77% massage; 74% multivitamin and nutritional therapy; 59% aromatherapy; 51% homeopathy; 50% reflexology; 42% herbalism. There were no categories that did not have at least 1% interest in them. All these figures were minimally higher than the willingness to practice figures, and they were in the same order except insofar as respondents would more likely practice reflexology than homeopathy; yet would refer to homeopathy before reflexology. The figures can be graphically represented as follows:

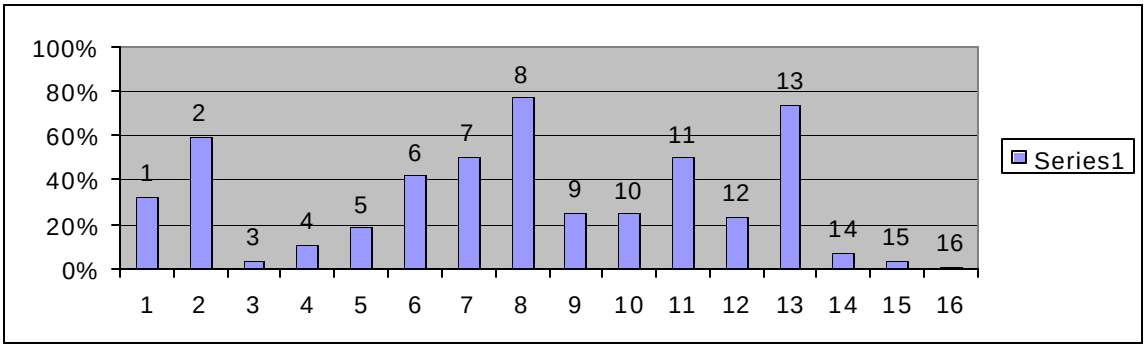


Figure 4.6 Analysis of CAM therapies most preferred for nurses to refer their clients/patients to.

(Key at top of page overleaf).

Where:

1 = Acupuncture	2 = Aromatherapy	3 = Ayurvedic medicine
4 = Chinese Traditional Med	5 = Chiropractice	6 = Herbalism
7 = Homeopathy	8 = Massage therapy	9 = Naturopathy
10 = Osteopathy	11 = Reflexology	12 = Traditional African Med.
13 = Vitamins & Nutrition	14 = Shiatsu	15 = Unani Tibb medicine

16 = Other CAM therapies not mentioned above

4.4. Summary

In chapter four, the study results were presented and discussed, and an approach to the data analysis was given. The study results can be summarized as follows. Stress is the greatest health problem, followed by allergies, respiratory infections, digestive upsets, operations and integumentary system disorders. This is similar to overseas findings. Most respondents, 90% reported no disorders needing treatments. More respondents said their problems were minor than major, and more said their problems were acute rather than chronic.

As previously reported, overseas (US) trends seem to show that CAM therapies are most often chosen as stress-relieving therapies and as treatment for chronic conditions. This sample had high levels of stress, but reported mainly acute conditions, which may or may not have influenced their non-choice of CAM therapies. There is however another factor that needs to be explored, and that is that whether or not a CAM therapy is used for stress and chronic conditions only is largely a factor of the level at which CAM is being used, and its cultural associations. For example, in France, medical doctors use aromatherapy oils as clinical medicines, and no one except aromatherapy-trained medical doctors are allowed to use aromatherapy oils. Here, one would expect that aromatherapy will not be seen as a CAM therapy for relief of stress and chronic conditions, but as an adjunct to

existing allopathic tools for the treatment of disease. Similarly, the researcher expects that TAM is perceived as medicine and not a stress-relief remedy by the majority (some 70% possibly) of the research population used for this research.

Of the respondents who felt sick, 50% visited their allopathic practitioners, but only 10% visited CAM therapists. In order to maintain health when they did not feel sick, 36% of the sample saw an allopathic practitioner, while only 9% visited a CAM therapist. This is much lower, than the profiles obtained overseas. Of the respondents seeing both an allopathic practitioner and a CAM therapist, 8% told their doctors about their CAM use, and 9%, told their CAM therapists about their medicinal interventions. Multivitamin use and Traditional African medicine are the therapies most used by these groups. Regarding knowledge of the CAM therapies, 45% knew nothing about CAM, and 36% learned about it from the general media. The remaining 19% gleaned knowledge from various sources, including only 15% from their home cultures. In spite of low current levels of knowledge of CAM therapies, 73% of the neophyte nurses would practice CAM therapies if registered, and 57% wished to be able to advise their patients about CAM therapies. A large proportion of the respondents, 82%, would refer to a CAM therapist as opposed to only 11% who were completely opposed to CAM. The therapies most preferred for both practice and referring clients/patients to are massage, multivitamin therapy, aromatherapy, reflexology, homeopathy and herbalism.

Finally, the researcher's conclusions and recommendations are presented in the last chapter, to follow.

CHAPTER FIVE: SUMMARY, MAIN FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

In chapter one, the introduction to this research report was given. The literature was reviewed as extensively as was needed for the research in chapter two. The research methodology was outlined in chapter three, and the results with discussion presented in chapter four. In this chapter, the final conclusions will be made regarding the results. The methodological and theoretical limitations of the study will be presented. Further areas that need to be studied will be highlighted, both in the case of proposals for nursing education, and for other areas of research.

5.2 Summary of the study

Seven years of personal use of and practice in three CAM therapies prompted the researcher to undertake this study. A literature survey was conducted to enable the proposal and study to be drawn up. The study replicated aspects of three seminal studies, by Eisenberg et al [47,48] and by Kreitzer et al [82]. The purpose of this study was to assess the trends and patterns of use among senior nursing students of CAM therapies, and to determine their knowledge and the sources of their knowledge of these therapies. The researcher explored the intention of the senior nursing students to use CAM therapies on their patients, or to refer their patients to practitioners of CAM therapies. The objectives set for the study were to establish the health-seeking behaviours and types of health care sought by senior nursing students for the last 12 months. This information was broadened to establish which types of CAM therapies were used, if any; and to determine the students' intentions to practice CAM therapies or to refer their patients to CAM

therapists. Once again, the objective was to establish which CAM therapies would be the therapies of choice in each case.

A self-report survey was the ideal instrument to elicit the preliminary data needed. The original draft of the questionnaire was modeled on Eisenberg et al's two studies [47,48] and Kreitzer et al's study [82]. Senior nursing students from three teaching institutions in Johannesburg participated in the survey. A pilot study to test the feasibility of the study and the reliability of the instrument was carried out at one of these three institutions. The group that participated in the pilot was not the same group that was later used as subjects at this institution. The pilot test was then subjected to a Peason's Product-Moment Correlation test to assess test-retest reliability. Pearson's r was found to be 0.8, which shows high reliability of the instrument. The researcher personally supervised and conducted the giving out and collection of questionnaires, and entered the data obtained. Assistance in the use of and interpretation of the statistics was obtained from the Department of Medical Biostatistics, and two social statistics textbooks [14,112]. Descriptive statistics (frequencies, means, and proportions) were used to summarize and present the results.

5.3 Limitations of the study

A survey is an adequate formula for starting an enquiry into previously uncharted waters, and may provide extremely useful preliminary data [36](p.256). Nominal and ordinal data were obtained. The study does not have the force or predictability of more scientific research trials. Due to the restrictive nature of the sample, and the purely descriptive

nature of the data, the study can only be generalized to the population that has been studied.

The study is restricted to an extremely limited geographical area, which is however the economic hub of South Africa. It is expected therefore that the nursing students in this area may not necessarily have the same views as nursing students around the country, particularly in poorer areas with possibly higher levels of chronic disease, HIV/AIDS and tuberculosis. Furthermore, while urban students may know more about the CAM therapies legislated into the Allied Health Professions Act, it is likely that the more rural students are exposed at a much higher level to African Traditional Medicine. The student group is further limited to those studying for registration as a nurse (general, psychiatric, community health) and midwife, and excludes other categories of nurses that may have more time or willingness to use these therapies. Views of nursing faculty members and other health care professionals are not assessed at all. All of these will influence any inclusion into the curriculum of CAM therapies, and needs to be assessed.

5.4 Main findings and conclusions

CAM therapies were not used as often as they are overseas in this study group. The main results can be summarized as follows. The respondents reported themselves as relatively healthy, the major problem experienced being stress. Most health problems were reported as minor and acute. Sickness was untroubling enough that only 50% of respondents saw an allopathic practitioner. CAM practitioners were seen by only 10% of respondents reporting problems, much lower than the number visiting allopathic

practitioners. Since CAM use is often higher with chronic problems, the fact that the respondents perceived their health problems largely as acute may explain the low level of CAM use. This data was however not strong enough to allow correlative methods of interpretation to be applied to the problem. The trends of use remained fairly similar when respondents were healthy, as 36% of the sample visited allopathic practitioners simply to maintain their health, even when they did not feel sick, as opposed to 9% visiting their CAM therapists for this reason. Of those using CAM therapies, multivitamins and Traditional African Medicine ranked the highest in use. A large number of the respondents, 45%, professed to knowing nothing about CAM therapies. Of the 55% who did have some knowledge of CAM therapies, 36% derive their knowledge from the general media. Although almost half the sample said they knew nothing about CAM therapies, 89% were interested in learning about them, and 73% were interested in practicing some form of CAM in the context of nursing. Even if the respondents did not wish to practice the therapies directly, 57% expressed an interest in being able to advise their patients knowledgeably about CAM therapies. There was a high level of interest (82%) in being able to understand the therapies well enough to refer their patients to practitioners of CAM therapies. The therapies most preferred both for practicing within the nursing context and for referring patients to, were massage therapy, multivitamin therapy, aromatherapy, reflexology, homeopathy, and phytotherapy (herbalism).

5.5 Recommendations

It is acknowledged that CAM therapies may not be found to be "Essential Medical Services" as presently seen by the government. Traditional practitioners and birth attendants have been singled out as not presently forming part of the public health service, although attempts to ratify their position are being made [60] (p.57). None the less, these recommendations are made in the light of WHO's strategy to assist countries in regulating the use of CAM to make its use safer, accessible, and the critical tool they envisage to increase access to health care in developing countries [149] (p.9). Offering palliative or comforting CAM therapies might prove to be an additional incentive to people with HIV/AIDS in the community to attend the Voluntary Counseling and Testing services. If nurses are enabled to teach various CAM practices to community carers, some of the enormous overburdening of the public health care system that is occurring and that is going to occur in even greater force as the HIV/ AIDS and associated tuberculosis waves reach their peaks may be alleviated.

5.5.1 Recommendations regarding future nursing education

A high level of interest was discovered in learning about, practicing or referring knowledgeably to various CAM therapies. It seems that at least an introductory course to the basic tenets of CAM therapies and "holistic" or "body-mind medicine", needs to be presented to all student nurses. The problems inherent in developing adequate and relevant research avenues for these complex subjects, and an understanding of a range of the most commonly practiced CAM therapies needs to be included at neophyte nursing level. The researcher suggests that the starting point is at least the therapies now

legislated, together with TAM (Traditional African Medicine). Project and group work could cover the myriad of other CAM therapies on offer at least superficially. These recommendations have to be set against the known budgetary and time constraints faced by nursing schools around the country.

Bearing in mind these constraints, the researcher would like to make the following recommendations for inclusion of CAM/TAM therapies into the South African nursing syllabus. The recommendations have been made from the expressed levels of interest in various subjects, and the demographic profiles of our country.

Year I: ⇒Groupwork projects looking into different global world-views on health and health-maintenance cultures, heritages, medicinal plant and other practices.

⇒Practical introduction to basic therapeutic massage - very high demand, and it was an integral part of nursing once: the beds-and-backs round has vanished!

⇒Possible electives for interested students in non-evasive, non-chemical energy healing methods, such as reiki, sound therapy, healing touch.

Year II: ⇒Introduction, as complementary to pharmacology understanding, to the pharmacotherapeutic differences between various substances used in CAM, such as homeopathy and other vibrational medicines, herbal remedies, and aromatherapy oils. Overview of issues of regarding safety, interactions between substances and allopathic medicines, use and abuse of natural substances, and toxicology precautions. Special insight into TAM medicines.

⇒Introductory courses into various research methods that may be used to study these therapies successfully. This would be additional good grounding for 4th year research projects.

Year III: ⇒Projects and groupwork involving visiting and analyzing various types of TAM/CAM therapies available in South Africa, with extra lectures into advanced Patient-interview techniques needed to access and understand concomitant use of other therapies, and to advise patients on such use rationally and without judgement.

⇒ In depth study of various dietary regimes, multivitamin and nutritional therapies (a subject hugely advanced from the basics we traditionally cover in nursing school, and vastly more complex and interesting). Could involve visiting lecturers who have specialized in Nutrition, or Nutritional Medicine.

Year IV: ⇒Elective involving further training and case-studies/research into a more advanced therapy of their own choice. It is envisaged that these electives should be initially restricted to the areas that elicited the largest interest: therapeutic massage including sports massage, therapeutic Aromatherapy, and therapeutic Reflexology. Possibly a link could be forged with the new Sports Science centre.

5.5.2 Recommendations regarding future research

The researcher was disappointed that the quality of the data was poor for many questions, particularly the demographic questions, and had to be inferred. This may have been due

to the small number in the study compared to large population studies. It would have been interesting to correlate whether visits to an allopathic practitioner or to a CAM therapists were influenced by whether the disease was seen as chronic or acute, major or minor. This was not possible. More probing studies need to be conducted to bring this out.

The results need to be strengthened with a systematic exploration of similar groups of students throughout the country. A deeper exploration with more qualitative responses would allow us to infer whether trends and patterns of CAM use, knowledge of CAM therapies, the willingness to use and to refer to CAM therapies, and the types of CAM therapies preferred, are different among rural and urban students. Other categories of nurses need to be surveyed to assess the willingness to use, and the preferred therapies among qualified nursing sisters, enrolled nurses and nursing assistants. It would be useful to determine which categories have more time to carry out such therapies as massage, and whether more advanced CAM functions should be restricted to higher categories of nurses, and if so, which functions these are. For instance, would it be appropriate for registered nurses to decide on the type of massage or mixture of oils most beneficial to the client, or could assistant nurses also be trained to make these kinds of decisions. It would also be useful to determine whether certain specialties of nurses, such as oncology, palliative, hospice, geriatric, or rehabilitative nurses would benefit from more advanced studies in these or other CAM therapies.

Other medical professionals need to be surveyed in a broadened net, as in the literature. It is suggested that qualitative studies need to be done to explore thoroughly the nature of disclosure of CAM use within the context of both the doctor/patient and the Public Health Care or Community Health Nurse/patient relationships, given the realities of the health care services in Southern Africa. It would be useful to know whether there is a rural/urban or cultural or socio-economic divide, or mistrust issues that cause less disclosure given carers of a different group, or less overall disclosure than is reported in the Eisenberg studies. This is highlighted by the nature of some of the qualitative answers given, which seem to point to extreme reluctance to disclose TAM use if the doctor (read also PHC or Community Health Nurse) comes from a different cultural group.

Recent newspaper reports have highlighted many sufferers' reluctance to present at hospitals with HIV/AIDS, and their tendency to present late at night and at an advanced state of the disease, to prevent being seen and judged by the community. It would be useful to determine whether, in the context of community based massage/aromatherapy/ other CAM therapies, a trust relationship might facilitate both the disclosure of HIV/AIDS fears, and gentle, timeous referral to counseling and hospital help. The researcher strongly believes that all avenues open to a patient for health must be used, including nutritional, supplementational, alternative therapies, and anti-retroviral/ other medicinal and allopathic care.

Eventually, research should be carried out on the general populations, with attention being given to differences between trends and patterns of use of CAM therapies in the rural and urban areas, and between different cultural and socio-economic groups. This information could be used to fine-tune both training programmes and safety information dissemination.

5.5.3 Further avenues for study, not in the nursing discipline

The researcher is aware of other avenues of research that should be followed up outside of the context of nursing, particularly with regard to the CAM therapies she personally practices. These recommendations and suggestions will be presented in articles sent to the relevant professional publications. There is a need to train CAM therapists better in some allopathic disciplines as diagnostics and basic pharmacology, and to discover what is the best level at which to do this, given poor self-reporting of ill-health suffered in the study. A much more in depth study of and training in the interactions that may be expected between allopathic and CAM modality substances needs to be pursued. The interactions between multivitamins and foodstuffs such as dairy products needs to be studied and the results included in the training of CAM therapists. Double blind studies that at least pinpoint poor suppliers of various nutritional and other CAM (including aromatherapy) products, with open dissemination of the results, should be carried out.

5.6 Conclusion

A study of the trends and patterns of use of Complementary and Alternative Medicine (CAM) among senior nursing students in Gauteng revealed that only 10% of the sample

visited CAM therapists in the previous 12 months when they were not feeling well, and only 9% visited a CAM therapist in the previous 12 months when they were not displaying any signs of ill health in order to maintain good health. There was none the less a 73% interest in practicing CAM therapies within the nursing context. Interest in learning about CAM therapies reached 89%. Furthermore, 82% of respondents would refer to a CAM therapist, even though 45% of the respondents said they knew "nothing" presently about CAM therapies. Only 15% of respondents said they knew what they knew from their home cultures, highlighting what the researcher feels to be potentially a dangerous problem. While the public are increasingly turning to methods thought to be completely safe, as they are "natural" and "from our pasts", our societies have all lost so much of their previous folk knowledge. The use of these substances has perhaps become more dangerous that it would have been in the past. Detailed folklore and "old wives knowledge" is possibly better than relying in an uninformed way on unscrupulous advertising material. In any case, much of this knowledge would now have to be updated given the tremendous advances in the medical sciences we have seen in the last century.

The therapies most preferred for both practice and referring clients/patients to are therapeutic massage, multivitamin therapy, aromatherapy, reflexology, homeopathy and herbalism. Disclosure of use of CAM therapies to allopathic practitioners and vice versa is very poor. Doctors are told about CAM use 8% of the time, and CAM therapists are informed about medicinal interventions only 9% of the time. Considering that the subjects are nursing students who should be expected to be more aware of the problems of chemical interactions than the general public, these figures are quite frightening. The

reasons given for non-disclosure are standard: in both cases, they fear the censure of the practitioner/therapist. Multivitamins and Traditional African medicine are the therapies personally most used by the respondents, though not at a high level, or not disclosed as such.

The study reveals that even among health professionals who are presently engaged in studying health, knowledge of the various health options available widely and sometimes irresponsibly promoted in the media; and of interactions between these options and allopathic medicine is poor. Among affluent consumers, CAM therapies are highly publicized and marketed, both in terms of their products and their famous "faces" or "gurus". People can easily buy "help yourself books" and obtain products from general book dealers and health shops. There is little control, and a widespread perception that these therapies are completely safe and without side effects "unlike western medicines". This perception is deliberately fostered by the advertisers of these products, therapies, and by some of the "experts". Among the poor, knowledge of the dangers of using certain herbs for too long or in too great concentrations may also not be apparent. Given that humans by nature believe they can buy immortality and perfect health with some or other potion, lotion, or method, the possibility of innocent misuse is high.

The researcher believes that the findings point to a need for health professionals, including nursing students, to become more educated about CAM therapies, so that they can continue to educate the public and guide them safely in their choice and use of CAM therapies.

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APPENDIX 1

PROBLEMS ENCOUNTERED IN PERSONAL AROMATHERAPY PRACTICE REGARDING USE OF (UNMONITORED) DANGEROUS OILS.

Pennyroyal, Thuja, Sassafras, Tansy, Wormwood and Wintergreen, are among the oils that are never supposed to be used by aromatherapists as they are highly toxic, containing high amounts of dangerous phytochemicals. (Wintergreen, for example, has about 98% Methyl salicylate, which is moderately to severely toxic, and has a interactions with warfarin, aspirin and heparin). Although short courses in aromatherapy generally make students learn quite short lists of "banned oils" off by heart, they are not often aware of why the oils are dangerous. Members of the public are even less aware. Unscrupulous sellers may not enlighten them. Suppliers of aromatherapy oils are supposed not to sell these oils to anyone except the appropriately trained and qualified people, but not all of them adhere to these restrictions.

A case in point is that of Lanyana/Wilde Als/African Wormwood essential oil (Artemisia afra). This is related to Artemisia absinthium, Wormwood. "Lanyana" is being sold to anyone who wants to buy it, students included and encouraged, by at least two suppliers known to the researcher, ostensibly as a safe oil. They mention no contraindications, not even any age restrictions for use (the researcher asked specifically about this when she first bought some of the oil), and do not give the latin/botanical name. Since the researcher was unwilling to use on her (mainly elderly) clients an oil whose latin name and contraindications she did not know, she embarked on a search of her books, frequently interrupted by telephonic questions to the two suppliers. (One sells the substance as "Wilde Als", no latin name; and the other using its Zulu name, Lanyana, no latin name). Eventually the search yielded the following information: high in alpha thujone (up to 30%), beta thujone (up to 12%), camphor (up to 10%), and artemisia ketone (up to 24%). These are all hazardous chemicals in aromatherapy oils. No data found on acute oral lethal dose, but assumed severly toxic and neurotoxic from the thujone content. "This essential oil is probably too toxic to be safely used in aromatherapy". Comparable to tansy, thuja, wormwood [131] (p.143).

What is most frightening to the researcher in this episode is that many black people in the country know and trust Lanyana, and may get hold of the oil. They will most probably not be aware of how much more concentrated and powerful (and therefore toxic in small doses), an essential oil is compared to the herb they know. There is already a fair amount of confusion in the public mind concerning the concentration differences between herbs and homeopathic substances (this was a frequently encountered question asked by nursing students during this study). The relatively greater concentration of aromatherapy oils to herbal substances is often not known at all.

This and examples like it is what prompts the researcher to motivate for double-blind quality testing of all aromatherapy supplies in the country, and a transparent publication of the results to all aromatherapists. Although trained aromatherapists know the dangers of "poor suppliers", they are left mostly in the dark as to what quality most suppliers adhere to. Rumours are not a sufficient reason to destroy a business, but published, transparent, fair trials of the products of the businesses would be a good idea.

APPENDIX 2

PROBLEMS ENCOUNTERED IN PERSONAL AROMATHERAPY PRACTICE REGARDING USE OF OTHERWISE SAFE AROMATHERAPY OILS IN DANGEROUS CONDITIONS (MEDICAL PROBLEMS THAT THE THERAPIST DOES NOT KNOW ARE CONTRAINDICATIONS TO USE OF THE OIL).

Another example is that lemongrass (Cymbopogon citratus/flexuosus), a safe, popular, and easily obtained essential oil, should never be used in glaucoma as it contains a chemical citral which raises intraoccular pressure [131] (p. 231). This information is not in any of the popular-level texts produced in aromatherapy, which are the ones most commonly used in the education of aromatherapists and by the public for self-help manuals. Lemongrass oil is also a very widely used flavouring agent in the food and beverages industries.

There are many examples of this nature, which cannot all be listed. Suffice it to say, that this is a good reason for the researcher's wishing for there to be much more research and much more teaching of the public, the therapists, and the allopathic (medical and other students) than currently exists about a wide range of natural, food, and CAM substances.

It is not all doom and gloom. The oils have been found effective against Mycobacterium tuberculosis (TB) and many other scourges of mankind. Oils that help to combat TB include Lemon (Citrus Limon [per.]), Cypress (Cupressus sempiverens), Hyssop (Hyssopus officinalis)(extremely effective), Niaouli (Melaleuca viridiflora), Peppermint (Mentha piperita)(strongly effective), Summer Savory (Satureia hortensis), Winter Savory (Satureia montana), and Thyme (Thymus mastichina)(strongly effective) (104). Aromatherapy oils can be used specifically for their protective/medicinal effects. Price and Price (104:70 - 75) list 26 bacteria, 22 fungi, and 9 viruses against which various oils in normal practice have been found to be effective. There are many thousands of other studies dealing with these properties worldwide, including studies by microbiologists at the University of the Witwatersrand Faculty of Health Sciences (personal communication).

What is needed is a convergence of expertise, so that the dangers may be minimized and the health benefits to humankind maximized.

This applies to all the CAM therapies and substances, most of which are unknown to the researcher as they are not her areas of interest and learning.

APPENDIX 3

COPY OF THE STUDENT QUESTIONNAIRE DESIGNED FOR THE STUDY.

PLEASE DO NOT WRITE YOUR NAME OR INITIALS OR SCHOOL NAME ANYWHERE ON THIS FORM.

Please note that you are NOT OBLIGED to specify the name of your illness if you feel it is too sensitive. Just tick yes or no, and leave that column out. However, you MUST tick either yes or no for every question.

1. Have you ever suffered from any of the following health problems in the last 12 months? (Tick whichever is appropriate):				**2. If you ticked yes in question 1, do you think the health problem(s) was/were:** (Tick whichever is appropriate):			**3. If you ticked yes in question 1, do you think the health problem(s) was/were:** (Tick whichever is appropriate):			**4. If you ticked yes in question 1, did you see an allopathic (conventional) practitioner for the problem(s)?**			**5. If you ticked yes in question 1, did you see a CAM therpist for the problem(s)?**		
Health Problems	**Y**	**N**	**Specify**	**Major**	**Minor**	**N/A**	**Chronic**	**Acute**	**N/A**	**Yes**	**No**	**N/A**	**Yes**	**No**	**N/A**
a. Operations															
b. CNS (Central Nervous System)/ psycho-															
c. Endocrine/ Hormonal system															
d. Weak immunity															
e. Infectious diseases															
f. CVS (Cardiovasc), blood pressure,															
g. Respiratory system															
h. Digestive system															
i. Urogenital system															
j. Musculoskeletal system															
k. Skin/ Integumentary															
l. High stress levels															
m. Allergies															

6a. Even if you did not suffer from any of these problems, did you see an allopathic (conventional) practitioner simply to maintain your health?
YES / NO (Circle one).

6b. Even if you did not suffer from any of these problems, did you see a CAM therapist simply to maintain your health? YES / NO (Circle one).

7a. If you saw both an allopathic practitioner and a CAM therapist, or if you used additional CAM therapies on your own, did you tell your allopathic practitioner that you were also using alternative therapies? YES / NO (Circle one).

7b. If your answer to the above is "no", what were your reasons for not telling your allopathic practitioner that you were using CAM therapies as well?_____

_____

8a. If you saw both an allopathic practitioner and a CAM therapist, did you tell your CAM therapist what conventional medicines you were taking, if any?
YES / NO (Circle one).

8b. If your answer to the above is "no", what were your reasons for not telling your CAM therapist what medicines/conventional treatments you were using?_____

_____

9. If you saw a CAM therapist at all, which CAM therapies did you use?
(Tick yes or no, then fill in any applicable in the last three lines):

Acupuncture	**Y**	**N**	Aromatherapy	**Y**	**N**	Chinese Medicine	**Y**	**N**
Chiropractice	**Y**	**N**	Herbal Medicine	**Y**	**N**	Homeopathy	**Y**	**N**
Massage Therapy	**Y**	**N**	Naturopathy	**Y**	**N**	Reflexology	**Y**	**N**
Shiatsu	**Y**	**N**	Multivitamins	**Y**	**N**	Nutritional Therapy	**Y**	**N**
African Traditional	**Y**	**N**	Ayurvedic Medicine	**Y**	**N**	Unani Medicine	**Y**	**N**
Any others practitioner you visited?:								
Any other therapies you used?								
Any supplements/treatments you used without advice/help?								

10. How did you come to know about CAM therapies?
(Tick yes or no).

a. I have no knowledge of CAM therapies	**Y**	**N**
b. My home culture taught me what I know about CAM therapies	**Y**	**N**
c. I have seen/read items in the popular media which have taught me what I know	**Y**	**N**
d. I have read articles in the professional literature that have taught me what I know	**Y**	**N**
e. I have received introductory lectures at my nursing school about CAM therapies	**Y**	**N**
f. I have attended outside lectures for professional growth purposes and interest	**Y**	**N**
g. I have used some of these therapies myself	**Y**	**N**

11. Would you ever want to use any CAM therapies as a nurse, on your patients? (Tick yes or no).

a. If I had the proper training and were registered additionally in CAM therapies with the Allied Health Professions Council of South Africa, I would like to practice	**Y**	**N**
b. If I had attended a short introductory or weekend course, I would want to practice CAM therapies	**Y**	**N**
c. I wouldn't want to practice any CAM therapies, but I would like to be able to advise clients about CAM therapies after introductory courses in my nursing class	**Y**	**N**
d. I wouldn't want to practice any CAM therapies or to advise people about CAM therapies, and I don't think they should be taught to nurses	**Y**	**N**

12. Which CAM practices would you want to use within your nursing practice if you answered a,b, or c to the question above? (Tick yes or no, and then fill in anything applicable in the last line):

Acupuncture	**Y**	**N**	Aromatherapy	**Y**	**N**	Chinese Medicine	**Y**	**N**
Chiropractice	**Y**	**N**	Herbal Medicine	**Y**	**N**	Homeopathy	**Y**	**N**
Massage Therapy	**Y**	**N**	Naturopathy	**Y**	**N**	Reflexology	**Y**	**N**
Shiatsu	**Y**	**N**	Multivitamins	**Y**	**N**	Nutritional Therapy	**Y**	**N**
African Traditional	**Y**	**N**	Ayurvedic Medicine	**Y**	**N**	Unani Medicine	**Y**	**N**
Any others you would like to practice:								

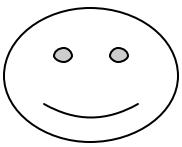
13. Would you be willing to refer patients to CAM therapists? (Tick yes or no).

a. I would refer my patients to CAM therapists only if they were registered with the Allied Health Professions Council of South Africa, and had the full training	**Y**	**N**
b. I would refer my patients to CAM therapists only if they were both medically trained (e.g. also nurses) and registered with the Allied Health Professions Council	**Y**	**N**
c. I would refer my patients to CAM therapists if they had a good word-of-mouth practice or if I knew they were good from personal experience, even if not registered	**Y**	**N**
d. I do not believe that I should refer my patients to CAM therapists, even if they are registered with the Allied Health Professions council	**Y**	**N**
e. I would strongly advise my patients never to seek treatment with CAM therapists, as I do not believe they are safe or well enough tested	**Y**	**N**

14. Which CAM therapies would you refer patients to, if you answered a, b or c to the question above: (Tick yes or no, and then add anything applicable in the last line).

Acupuncture	**Y**	**N**	Aromatherapy	**Y**	**N**	Chinese Medicine	**Y**	**N**
Chiropractice	**Y**	**N**	Herbal Medicine	**Y**	**N**	Homeopathy	**Y**	**N**
Massage Therapy	**Y**	**N**	Naturopathy	**Y**	**N**	Reflexology	**Y**	**N**
Shiatsu	**Y**	**N**	Multivitamins	**Y**	**N**	Nutritional Therapy	**Y**	**N**
African Traditional	**Y**	**N**	Ayurvedic Medicine	**Y**	**N**	Unani Medicine	**Y**	**N**
Any others you would refer patients to:								

Thank you for completing this questionnaire! Have a good day!



COPY OF INFORMATION AND CONSENT FORM. **APPENDIX 4**

Dear Colleague,

My name is Pam Schutz, and I am a registered nurse, midwife and occupational health nurse, reading for the second year of my Master of Science Degree in Nursing Education at the University of the Witwatersrand, Johannesburg. I have also had about seven years of experience in the three alternative health practices mentioned above, therapeutic aromatherapy, therapeutic massage therapy, and therapeutic reflexology. I am interested in investigating the use of various allopathic (conventional western medicine) and CAM (complementary and alternative medicine) therapies in the search for health. As colleagues, I would like to invite you to participate in the process by providing me with your own views on the subject by completing the attached questionnaire. It should take you 10 - 15 minutes to complete.

Although this study will not benefit you directly, it will provide valuable information to direct the training of future nurses. If you decide that you would like to help me by participating in this research, I need you to be as honest as possible in your answers. Your answers will be treated completely confidentially. Identifying demographic data, such as your name, will not appear anywhere on your answer forms. I am not attached to any nursing schools other than in my capacity as a student, and your answers will not in any way prejudice your marks or progress, nor will they be reported to the schools. Your individual identity will remain anonymous in all presentations, reports and publications of the study. All study data will be collected by myself, stored in a secure place, and will not be shared in its raw form with any other person. There is no foreseeable harm or risk to you if you participate in this study. This study has been submitted to the Committee for Research on Human Subjects (Medical) at the University of the Witwatersrand (Protocol M030528:Ref R14/49). The Chairman of the Ethics Committee, Professor P. Cleaton-Jones, can be contacted at 011-717-1234, fax number 011-339-5708, or email address keshava@research.wits.ac.za., through his secretary Ms. Anisa Keshav.

Your participation in this study is completely voluntary. You are under no obligation to complete the questionnaire. If at any point you disagree with my goals or the intent of my study, you are free not to answer, or to stop answering. Your refusal to participate will not prejudice you in any way. The study data will be coded to that they cannot be linked to your name. Your identity will not be revealed while the study is being conducted or when the study is reported or published. I will be presenting a summary of my research findings to your school on completion, and should you wish to receive personal or further feedback or to ask me any questions, I shall be available to answer them. Queries can be addressed through the Department of Nursing Education, University of the Witwatersrand, 7 York Road, Parktown, 2196, Johannesburg.

I have read this consent form, I understand the contents or have had my concerns answered, and I voluntarily consent to participate in this study by answering the attached anonymous questionnaire.

_____, dated on the ___/_____/2003 , at _____
PARTICIPANT'S SIGNATURE

_____ (Participant's name written in block letters)

I have explained this study to the above subject as part of a group and have made it possible for him/her to ask questions regarding any queries he/she might have on the study before giving informed consent.

_____, dated on the ___/_____/2003.
PRESENTOR'S SIGNATURE(LECTURER WHO HANDS OUT QUESTIONNAIRES).

Definition of CAM (COMPLEMENTARY AND ALTERNATIVE MEDICINE). (For understanding of the questionnaire to follow).

CAM refers to therapies not currently recognized by allopathic (conventional, what we learn in Western medical schools, nursing schools etc) medicine. It includes ten therapies that are now recognized in South Africa under the Allied Health Professions Act, 1982, Act no 63 of 1982, as amended. I have included in my questionnaire those ten therapies that are recognized therapies in law in South Africa, which are named below. I have also included African Traditional Healing, Ayurveda, Unani Medicine, Multivitain Therapy and Nutritional Therapy, as they are relevant to many people in South Africa. There are many other "practiced therapies", as can be seen in the article "The ABC of Alternative Medicine" that appeared in *Nursing Update's* Health Report, 2001, vol. 25, no. 20, pp. 48 - 50. You are referred to this article if you are interested in the subject. There are even more therapies than are mentioned in this article. Not all of the "practiced therapies" have scientific validation, and it is for this reason that they are not considered in this study. There is an option "other" for you to add therapies you think are worth practicing even if they are not included here.

Definition of allopathic (conventional) medicine. (For understanding of the questionnaire to follow).

Allopathic, (**conventional)** medicine refers to those branches of medicine that we in the West recognize as scientific medicine. This includes all branches of medicine and dentistry taught in our medical schools, pharmacology, nursing, physiotherapy, radiology, occupational therapy, logopaedics, dietetics and nutrition as taught in the medical schools, and all other treatment of this nature.

EQUATIONS USED TO COMPUTE TEST-RETEST RELIABILITY **APPENDIX 5**

Formula 15.4 p 281 of Bless and Kathuria [14] was used to calculate the Pearson's r coefficient of correlation to determine the reliability of the questionnaire. This formula is:

$$r = \frac{n\sum xy - \sum x\sum y}{\sqrt{[n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2]}}$$

Table E1. Results of scores obtained for all questions, using only the five well-answered questionnaires.

Subject	x^2	**Pretest scores, = x**	**xy**	**Post-test scores,= y**	y^2
Subject #1	3025	55	3520	64	4096
Subject #2	3600	60	3660	61	3721
Subject #3	6724	82	6970	85	7225
Subject #4	4356	66	3828	58	3364
Subject #5	6400	80	6400	80	6400
SCORES: n = 5	$\sum x^2$ = 24 105	$\sum x$ = 343 $(\sum x)^2$ = 117 649	$\sum xy$ = 24 378	$\sum y$ = 348 $(\sum y)^2$ = 121 104	$\sum y^2$ 24 806

Pearson's r coefficient of variance (using formula 15.4 above)

$$r = \frac{n\sum xy - \sum x\sum y}{\sqrt{[n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2]}}$$

$$r = \frac{5(24\,378) - (343)(348)}{\sqrt{[5(24\,105) - 117\,649][5(24\,806) - 121\,104]}}$$

$$r = \frac{121\,890 - 119\,364}{\sqrt{[120\,525 - 117\,649][124\,030 - 121\,104]}}$$

$$r = \frac{2\,525}{\sqrt{[2\,876][2\,926]}}$$

$$r = \frac{2\,526}{\sqrt{8\,415\,176}}$$

$$r = \frac{2\,526}{2\,900}$$

r = 0,87

This indicates a high reliability for the questionnaire.

Table E2. Results of scores obtained from question 6 - 14 of pilot study, using only the five most reliable subjects.

Subjects	**x^2**	**Pretest scores, = x**	**xy**	**Post-test scores,= y**	**y^2**
Subject #1	256	16	336	21	441
Subject #2	289	17	391	23	529
Subject #3	1296	36	1332	39	1369
Subject #4	441	21	294	14	196
Subject #5	1156	34	1190	35	1225
SCORES: n = 5	$\sum x^2$ = 3438	$\sum x$ = 124 $(\sum x)^2$ = 15 376	$\sum xy$ = 3 543	$\sum y$ = 130 $(\sum y)^2$ = 16 900	$\sum y^2$ 3760

Pearson's r coefficient of variance (using formula 15.4 above)

$$r = \frac{n\sum xy - \sum x\sum y}{\sqrt{[n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2]}}$$

$$r = \frac{5(3\ 543) - (124)(130)}{\sqrt{[5(3\ 438) - 15\ 376][5(3\ 760) - 16\ 900]}}$$

$$r = \frac{17\ 715 - 16\ 120}{\sqrt{[17\ 190 - 15\ 376][18\ 800 - 16\ 900]}}$$

$$r = \frac{1\ 595}{\sqrt{[1\ 814][1\ 900]}}$$

$$r = \frac{1\ 595}{\sqrt{3\ 446\ 600}}$$

$$r = \frac{1\ 595}{1\ 857}$$

r = 0,86

This shows a high reliability for the questionnaire

Table E3. Results of scores obtained from question 6 - 14 of pilot study, using all the questionnaires.

Subjects	**x^2**	**Pretest scores, = x**	**xy**	**Post-test scores,= y**	**y^2**
Subject #1	256	16	336	21	441
Subject #2	289	17	391	23	529
Subject #3	1296	36	1332	39	1369
Subject #4	441	21	294	14	196
Subject #5	1156	34	1190	35	1225
Subject #6	169	13	286	22	484
SCORES: n = 6	$\sum x^2$ = 3607	$\sum x$ = 137 $(\sum x)^2$ = 18 769	$\sum xy$ = 3 829	$\sum y$ = 152 $(\sum y)^2$ = 23 104	$\sum y^2$ 4 244

Pearson's r coefficient of variance (using formula 15.4 above)

$$r = \frac{n\sum xy - \sum x\sum y}{\sqrt{[n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2]}}$$

$$r = \frac{6(3\,829) - (137)(152)}{\sqrt{[6(3607) - 18\,769][6(4\,244) - 23\,104]}}$$

$$r = \frac{22\,974 - 20\,824}{\sqrt{[21\,642 - 18\,769][25\,464 - 23\,104]}}$$

$$r = \frac{2\,150}{\sqrt{[2\,873][2\,360]}}$$

$$r = \frac{2\,150}{\sqrt{6\,780\,280}}$$

$$r = \frac{2\,150}{2\,604}$$

r = 0,83

This shows a high level of reliability in the questionnaire.

ILLUSTRATION OF SCALES USED TO ENTER DATA INTO THE COMPUTER IN A BINARY FORM:

APPENDIX 6

PLEASE NOTE: IN ALL THE FOLLOWING TABLES, THE NUMBERS WERE ASSIGNED AS FOLLOWS: KEY FOR FIGURES IN TABLES OF RAW DATA, PILOT STUDY, AND MASTER STUDIES:

QUESTIONS	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**
Meaning of figure "1"	Yes	Major	Chronic	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Meaning of figure "0"	No	Minor	Acute	No	No	No	No	No	No	No	No	No	No	No
In all questions where the answer is N/A, then the figure "1" means	Nil	Yes N/A	Yes N/A	Yes N/A	Yes N/A	Yes N/A	Yes N/A	Yes N/A	Nil	Nil	Nil	Nil	Nil	Nil
In all questions where the answer is N/A, then the figure "0" means:	Nil	Not N/A	Not N/A	Not N/A	Not N/A	Not N/A	Not N/A	Not N/A	Nil	Nil	Nil	Nil	Nil	Nil
Meaning of figure "3":	Means: "Question is N/A": does not need to be filled in in this question, for all subsequent/related questions.													

COPY OF THE ETHICAL CLEARANCE FORM:

APPENDIX 7

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

Division of the Deputy Registrar (Research)

COMMITTEE FOR RESEARCH ON HUMAN SUBJECTS (MEDICAL)
Ref: R14/49 Schutz

CLEARANCE CERTIFICATE **PROTOCOL NUMBER** M03-05-28

PROJECT Trends and Patterns of Use of CAM Complementary and Alternative Medicine Among Senior Nursing Staff

Spelling, mistake!

INVESTIGATORS PL Schutz

DEPARTMENT School of Therapeutic Sci, Johannesburg Hospital

DATE CONSIDERED 03-05-08

DECISION OF THE COMMITTEE Approved unconditionally

Unless otherwise specified the ethical clearance is valid for 5 years but may be renewed upon application
This ethical clearance will expire on 1 January 2008.

DATE 03-06-05 CHAIRMAN ..... (Professor P E Cleaton-Jones)

* Guidelines for written "informed consent" attached where applicable.

c c Supervisor: Mrs J Bruce
Dept of School of Therapeutic Sci, Johannesburg Hospital
Works2\Main\Gen\Shared\Ethics\Ethics.wpd(tbl) revised

DECLARATION OF INVESTIGATOR(S)

To be completed in duplicate and ONE COPY returned to the Secretary at Room 10001, 10th Floor, Senate House, University.

I/we fully understand the conditions under which I am/we are authorized to carry out the above-mentioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the proposal to the Committee. I agree to a completion of a yearly progress form. I/we agree to inform the Committee once the study is completed.

DATE 05/7/2003 SIGNATURE

PLEASE QUOTE THE PROTOCOL NO IN ALL QUERIES : M 03-05-28

92

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES