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Use of Alternative medicine by Consumers in Health Shops in the Community and In-Patients in Secondary Healthcare Settings in the North East of England

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A thesis submitted in partial fulfilment of the requirements of the University of Sunderland for the degree of Doctor of Philosophy

Department of Pharmacy Health & Well-Being

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My God who I continue to seek faith, guidance, comfort, hope and joy

DECLARATION

I certify that the work submitted in this thesis is my own and that appropriate credit has been given where reference is made to the work of others.

ABSTRACT

The term “Alternative Medicine” refers to a diverse group of health-related therapies and disciplines, some of which have existed for thousands of years, which fall outside the domain of mainstream medical care. Although, their use was gaining widespread popularity and there was some research evidence relating to their use in some populations, there were still knowledge gaps. This seemed to be particularly the case for consumers in health shops and patients in secondary healthcare. Therefore the aim of this research programme was to investigate the use of alternative medicine with reference to the pattern of use, attitudes and incidence of adverse outcomes of alternative medicine in these two population settings.

The study, limited to the North East of England for practical reasons, was conducted in 14 health shops and comprised primarily of interviews with 130 adult consumers and a self-administered questionnaire survey of 24 health shop staff. The investigation in the secondary care setting included face-to-face interviews with 240 in-patients across five specialty wards of admission in a district general hospital using a semi-structured questionnaire with a review of the patients’ medical notes.

In general, the results showed a similar pattern of use of alternative medicine, attitudes and identified possible adverse outcomes of alternative medicine in the two population settings. Amongst the wealth of detailed useful information uncovered, principal findings included establishing that the most common use of alternative medicine was by white females with specific, defined conditions. The users’ background, education and age influenced their use of the products and their perceptions of their effectiveness and safety. The prevalence of use was identified among in-patients in the past, prior to and during admission in hospital. Less than a quarter of the in-patients using alternative medicine at the time of admission in hospital had reported the use to a healthcare professional. Quantitative data showed statistical significance between perceived effectiveness and patients’ past alternative medicine use, consideration of future use, age and gender. Perceived side-effects were not associated with past use, but rather with gender and future use. Taken together these findings significantly closed the knowledge gap on use of alternative medicine in the community and patients in secondary care. As such they will be of benefit to healthcare practitioners, insightful to professionals and a source of primary research evidence when formulating policy. While some further studies might be useful to confirm the generality of some of the findings and to maintain currency as populations and attitudes change, the finding of under-reporting of alternative medicine use is important and has obvious general relevance in the context of patient safety. Improved patient / consumer education on alternative medicine and reporting systems to healthcare professionals would be beneficial.

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1. Introduction

1.1 Defining 'Alternative Medicine'

The investigations in the study cover the use of alternative medicine. Given this it is very important to define at the very outset what exactly is meant by the term "Alternative Medicine". Of the several definitions provided in the literature, the definition adopted in this thesis is one that is best suited to the context of the research study. Alternative medicine is taken as referring to a diverse group of health-related therapies and disciplines falling outside the mainstream medical care (House of Lords, 1999). Examples of alternative medicine include acupuncture, herbal medicine, osteopathy, chiropractory and homeopathy. Accordingly, reference to alternative medicine in this thesis and understood in conducting the study signifies one of these single practices or a collection of the practices.

Although the adopted definition is suitable for UK-related research, it should be borne in mind that a different perception may prevail outside the UK, due to cultural variations that may impact on individual interpretation of the term. For example, Eastern or developing countries may perceive the dominance of mainstream medicine differently. For instance, in the study of Green *et al*. (2006) it was found that female Chinese immigrants in the UK maintain a strong identification with their culture of origin of Chinese pathways to treatments. These women tended to persist in their use of Chinese medicine prior to consultation with a Western medical practitioner. Such cases notwithstanding, it was felt that the UK-related definition would be suitable as the focus of the programme had been shifted from cross-cultural to being a UK regional study.

1.1.1 Preference for the term: Alternative Medicine

The preferred term, alternative medicine, in the thesis is used in order to sharpen the contrast with the concept of conventional medical care. Although complementary medicine is appropriate under certain circumstances, the term

alternative medicine clearly avoids ambiguity in its manner of usage. The National Centre for Complementary and Alternative medicine (2011) refers to therapy as alternative when it serves in place of conventional treatment, or complementary when it may serve as an adjunct to conventional treatments. However, in the study of Low (2000) the author addressed the question of how researchers refer to individuals' use of alternative therapies as alternative, complementary or concurrent therapy. Low (2000) reported that people who used both alternative medicine and formal conventional (allopathic) therapies, often concurrently, had not done so in a precisely complementary manner; if to complement means that one thing enhances the other. Nor was their use of these therapies consistent with a definition of complementary, which means that such an approach to healthcare stems out of the multitude of options available or assumes that cooperative relations between alternative and allopathic practitioners are easy to achieve i.e. as a definition, implying a notion of compatibility. She reported, that in contrast, those informants' day-to-day experiences in trying to accomplish that type of approach to health and healing was far more problematic than the word complementary in any conventional sense suggested. Low (2000), in a Canadian context, also reported the protective self-interest of alternative practitioners involved in the study. They used the concept complementary to avoid seeming in competition with medical professionals and to reduce the likelihood of being labelled 'quacks'.

Similarly, Petroni (1986) argued that the reference to the term complementary medicine tends to reflect a desire to avoid confrontation with traditional medicine. At the same time this use of the term traditional medicine by Petroni (1986) could bring confusion in the context of the contrasting use of this term in other sources within the literature. For example the World Health Organisation (WHO) (2011) referred to the definition of complementary and alternative medicine interchangeably with traditional medicine. This is in contradiction with the Petroni (1986) definition which states that alternative medicine includes all those therapies and approaches to healing which the traditional medical curriculum fails to cover. The WHO view is consistent to the Anyiman (1990) explanation of the ambiguity in

the conceptualisations of the term ‘alternative medicine’ being used with ‘complementary medicine’ or ‘traditional medicine’ (cited by Low, 2000).

Other than alternative medicine and complementary medicine or traditional medicine as found in the literature (Anyiman, 1990), other expressions such as fringe medicine or folk medicine, can come across as pejorative. This also applies to equally questionable terms such as unconventional medicine, unproven, unscientific and unorthodox medicine. Also, the recognition and absorption into the healthcare system of alternative medicine practices such as osteopathy and chiropractory is contrary to the notion that they are unconventional. Thus, the term unconventional used by Eisenberg *et al*. (1993) transmits an impression that is inappropriate with respect to current practice. The literature suggestion of an assumption of what is normal or of an unorthodox nature, such as by Thomas *et al*. (1991) is also assumed not appropriate to modern times. Similarly the use of the term unscientific has provoked controversy in that they are being portrayed to lack any kind of evidence (Tonelli and Callahan, 2001).

Furthermore, the term alternative medicine avoids the possible impression of being perceived as consisting of only a single discipline. On the other hand using the expressions natural products or herbal medicines which are examples of the practice does not cover the scope. Alternative medicine is a broader term that encompasses the broad range of practices.

Ideally alternative therapies might constitute a broader meaning to include diversity of practices or disciplines. However, in this thesis the use of alternative medicine conforms to the most commonly used definition in the literature.

1.1.2 Further terminology

The widespread usage of a variety of terms in the literature and in daily life may result in terms being used or perceived in different ways. However, it is impractical to define all relevant terms mentioned in the thesis. Nonetheless some other terms

are listed in italics below; these are key terms of special relevance to the context of this study.

As already stated *Alternative medicine* is defined as a diverse group of health-related therapies and disciplines falling outside the mainstream medical care in the UK (Section 1.1). In this thesis alternative medicine will be divided into two categories and these will be expanded upon in the methodology section. The first category includes *Herbal remedies* and *Dietary supplements*. Herbal remedies are preparations from plant sources while Dietary supplements are preparations containing dietary ingredients taken by mouth intended to supplement the diet (FD&C Act, 1994; Kayne, 2002; Medicines and Healthcare Products Regulatory Agency, 2011). The second category includes *Other forms of Alternative medicine* that are excluded from the first category.

Conventional medicine or Conventional healthcare practices have been referred to as scientific, western and orthodox medicine. For reasons of simplicity the use of either term in the thesis refers to the collective or single practice of the formal mainstream medical care in the UK.

Although alternative medicine as is defined here is intended to contain over-the-counter alternative medicine sold in health shops, in the study the terms *conventional drugs* are *over-the-counter drugs* and *prescription drugs* refer to pharmaceutical drugs in conventional medicine.

The *population settings* of the study refer to the two groups, which form the basis of the study. The first group *Consumers in Health shops in the Community Setting* refers to consumers in common retail health shops such as health food shops, pharmacies and Chinese Medicine shops in the community setting in England. *In-patients in Secondary Healthcare Setting* include hospitalised adult patients within a secondary healthcare setting in England.

Having rationalised terminology that is different to that used in this thesis and explained some other terms, it is worthwhile for clarity to state once more that the

term, “alternative medicine” used in this thesis refers to a diverse group of health-related therapies and disciplines falling outside the mainstream medical care in the UK.

1.2 Background

The rise in the popularity of alternative medicine comes as an interesting phenomenon against the background of the success in conventional medicine in Western countries. The initial aim of the research programme was to provide current evidence of usage of alternative medicine in the UK and to include comparison with an Eastern region where the practice is considered to have originated. The significance of this was to provide current knowledge of alternative medicine use and to increase understanding of different cultural perceptions. An additional objective had been to identify the most prevalent herbal remedies and dietary supplements in the commercial settings in the two countries and to carry out analytical investigations of their constituents. However, at the outset of the programme it became immediately apparent that all this would be much too broad in scope to be managed, especially considering the fact that it required various routes of approvals, more resources and time.

Thereafter, the focus of the study was to investigate the use of alternative medicine among consumers in health shops in the community and in-patients in secondary healthcare setting where there was, at the time, an identified knowledge gap in the literature. People have access to alternative medicine in health shops in the community without contact with healthcare professionals. However, no previous studies had been identified in the literature in which an examination of how or why alternative medicine is used among consumers in health shops had been carried out. Thus, whether or not this may be reflective of their manner of usage was unknown. On the other hand a study carried out was identified that included 56 cancer in-patients in a hospital setting in Southampton in the UK (Lewith *et al.,* 2001). In this study the use of alternative medicine was reported only during hospitalisation by the cancer in-patients and prescribed within the National Health Service context. In a later study the prevalence of alternative

medicine use was reported among patients admitted on surgical specialty wards (Shakeel *et al.*, 2008) in Scotland and the nearest prevalence of alternative medicine use that was reported in this study was for the year preceding admission. Hence, it appeared that there was still a shortage of knowledge within the literature regarding the prevalence of alternative medicine use among in-patients prior to the time of admission in hospital. Secondary care in the UK is a healthcare setting and provides treatment for acutely ill patients but the use of alternative medicine is not routine practice. It was thought that an investigation of the two populations in the settings would therefore add to the body of knowledge and understanding of alternative medicine use, inform practice when managing patients and assist in policy decision-making in overall healthcare. This prospective study was to be conducted in the Tyne and Wear region in North East England in the UK (Figure 1.1).

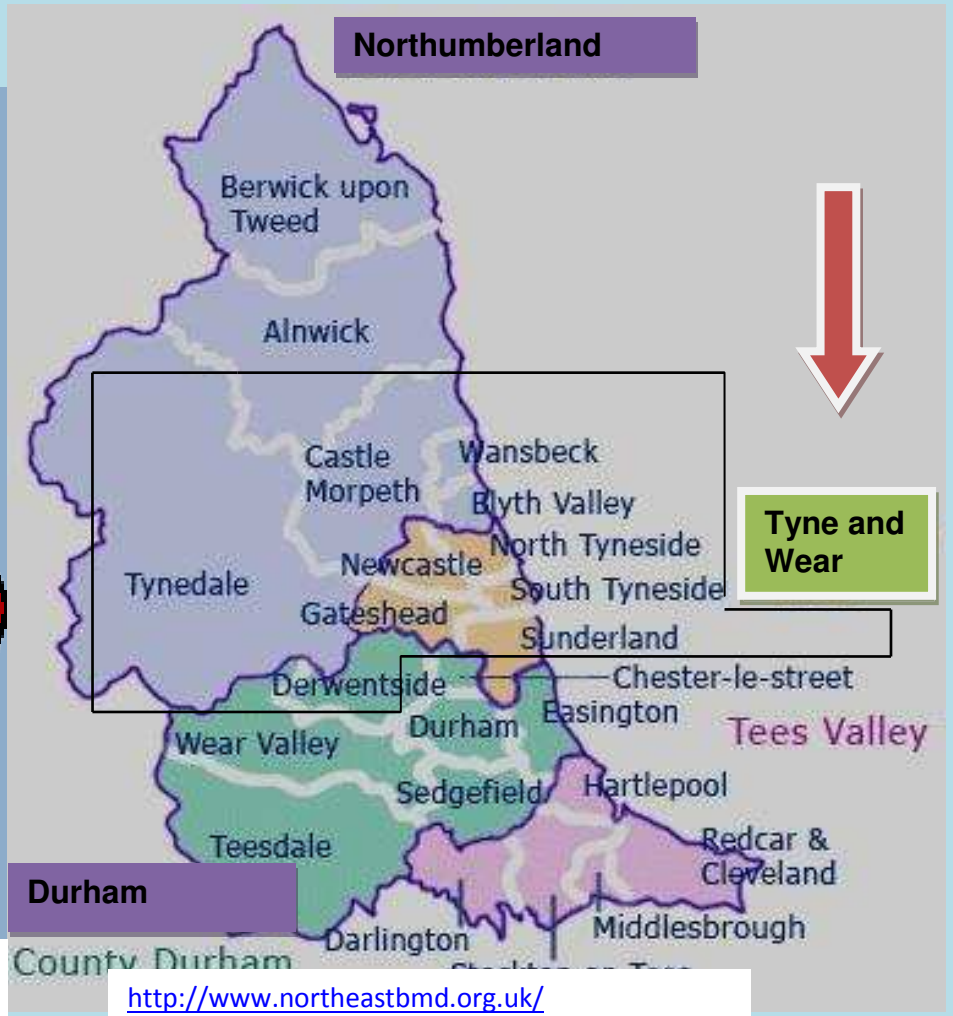
1.3 Study Aims

As will now be apparent, the aims of the study were therefore to investigate alternative medicine use by consumers in health shops in the community and in-patients in secondary healthcare settings within the North East of England in the UK. It was planned to examine the patterns of use of alternative medicine, the consumers and in-patients attitudes to alternative medicine use and the incidence of possible adverse outcomes of alternative medicine used.

Regions of England, Scotland and Wales in the United Kingdom

Projectbritain.com Project Britain, British Life and Culture
http://www.woodlands-junior.kent.sch.uk/customs/questions/regions/

The North East Counties: Northumberland, Tyne and Wear, County Durham



http://www.northeastbmd.org.uk/

Figure 1.1 Geographical setting of the prospective study in the Tyne and Wear, North East England

2. Literature

2.1 Alternative Medicine in the UK

Before addressing the use of alternative medicine in particular population groups it is instructive to first consider general aspects of current practice of the use of alternative medicine in the UK as evidenced by the literature

2.1.1 Historical overview

The practice of alternative medicine has several origins. As suggested by Kayne (2002), the dates may vary according to the literature being read. Similarly, some intersections across history can be seen which question the exact origin of some practices in specific societies. Nonetheless, evidence in the literature links the origin of alternative medicine to Eastern societies which in return, influenced the West.

The origin of herbalism has been said to be unknown and may have possibly started by accidental occurrence (BMA, 1986; Kayne, 2002). The British Medical Association (BMA, 1986) ascertained that the search for natural remedies for common human ailments stems from a collective survival instinct, wherein people have tended historically to consider the potential of certain plants and natural substances as possibly of benefit to human beings in general. This is said to have led to a form of trial and error in order to establish efficacy. This approach of relying on nature extended to the human diet, which came to constitute a blend of both vegetable and animal protein, which proved helpful in resisting poisons. According to the BMA (1986), unknown to early humans, the reason for the effectiveness of this eclectic diet was its production of liver and kidney enzymes. Meanwhile, early humans also discovered solutions to the treatment of wounds due to such events as hunting accidents, for which certain plants either soothed or sped up the healing process.

According to speculation, the opium poppy, *Papaver somniferum*, was said to be one of the earliest medicinal plants known to man (Kapoor, 1995). As Kapoor

pointed out the plant is still used and misused today. He revealed from several sources of evidence that the time and place of discovery could not be fixed undisputedly and the origin was not in China, where it was extensively produced and most widely used, as earlier thought, but with some other civilisation. It was discovered to have been brought to China by the Arabs (Kapoor, 1995). He reported that in Europe the conclusion was that opium was being taken before men were literate.

Kayne (2002) reported that the first person to study plants scientifically in the sixteenth century was William Turner. He grew plants in his garden in south-west London (later the Royal Botanical Gardens, Kew in Surrey England). Samuel Thompson, who was born 1769-1843, referred to as a medical doctor, however only had one month's schooling in his life. His work involved using simple herbs for bodily corrections. Although, he was said to have been prosecuted, his name was cleared and he became universally known as an outstanding figure in the medical field (Kayne, 2002). His fame according to Kayne (2002) spread to England where, thanks to promotion by George Lees, the Thompsonian system was embraced by Jesse Boot when he opened the first of what was to become the UK's biggest multiple pharmacy chain in Goose Gate, Nottingham in 1872. In 1842 the Pharmaceutical Society of Great Britain established a museum collection of dried plant specimens, plant extracts and plant parts of medicinal value (Anon, 1989 cited in Kayne, 2002; Economy Botanical Collection www.kew.org). The Pharmaceutical Society of Great Britain was started in 1841 (the prefix added today Royal was added in 1988) (Economy Botanical Collection www.kew.org).

Prioreschi (2000) identified three bases of alternative medicine that had developed in the past. He reported that Roman medicine, Islamic medicine and the traditional naturalistic Hindu alternative medicine in India (referred to ayurvedic medicine) were believed to have developed a few centuries before the beginnings of Western medicine. The teaching of ancient Indian ayurveda was said to have been passed down by word of mouth for thousands of years. More exactly, Kayne (2002) had reported ancient Indian ayurvedic literature at somewhere around 6000 BC. The exact time of Roman alternative medicine was not dated (Prioreschi, 2000), but it was known that it had entered into a period of stagnation by 200 AD.

On the other hand, Islamic alternative medicine origin may go back to the tenth century. A significant point was that the classic period of the three alternative medicine are said to have come to an end in their different populace. However, Ayurvedic medicine was said to have continued uninterrupted in India (Prioreschi, 2000).

Conrad *et al.* (1995) on the other hand pointed out that it was easy to trace the Western tradition of medicine back to the ancient Greeks. Greek medicine in the West was considered to have played a similar role as Indian Ayurvedic medicine across the Eastern world, for example in Indonesia, Indo-China and Japan (Kayne, 2002). Conrad *et al.* (1995) also pointed to the argument that Greek medicine although having learnt itself to influence other societies kept silent about any trace of near Eastern influence or vice versa, and any borrowing that may have occurred. Such influences would have been far back in the past that what was transferred would have been altered beyond recognition. Medicine in the Greek world was dated from 800 - 50 BC, but the earliest surviving Greek medical writing (parts of the Hippocratic corpus) dates from about 420 BC at the time Greeks had migrated as far West as Spain (Conrad *et al.*, 1995).

Another influence attributed to the Western tradition of medicine was Roman medicine dating back to 250 BC – AD 200 (Cornard *et al.*, 1995). Galen, born in AD 129, was associated with the golden age of Roman medicine but it was also known as the Hippocratic age which rested on the concept of the four humors of the body (Conrad *et al.*, 1995; Prioreschi, 2000). Cornard *et al.* (1995) also were of the view that Galen was clear what mattered above all was the usefulness of the pulse in medical practice. Prioreschi (2000) reported that after the death of Galen, Roman medicine was said to have entered a period of stagnation. This was followed by an aversion that manifested itself as a movement toward a sort of garden medicine. Prioreschi (2000) reported that with the development of this new paradigm, physicians were considered not only greedy and dishonest, but incompetent as well. On the other hand the most wonderful remedies could be found in any backyard garden. Hence Hippocrates and Galen were out and the alternative medicine of the *Euporista* was in. *Euporista* is a Greek word translated to Latin as Parabili which literally means ‘easily obtainable (drugs) and several

collections of household remedies were entitled *Euporiston.* However, some Euporsiton were said to have been written well before the death of Galen (Prioreschi, 2000).

The Arab-Islamic medical tradition was another influence of ancient Western medicine (Conrad *et al.*, 1995; Prioreschi, 2000). Meanwhile Islamic medicine was said to be based on the Greek paradigms (Prioreschi, 2000). With respect to this Prioreschi, (2000) revealed that after the Moslem conquest the science of the pulse which was one of several medical paradigms that co-existed along with Indian Ayurvedic medicine in India was probably of Chinese origin.

While Chinese medicine was an influence in the past and in the present is linked to the West, in comparison to others, it remained a significant practice in its place of origin. Kayne (2002) reported that the earliest date of the first definitive version of the text that appeared was in the first century BC. This text was said to have remained to this day as the most authoritative guide to traditional Chinese medicine (TCM). Kayne (2002) confirmed the spread of TCM (a generic term used to describe a number of medical practices that originated from China which includes for example acupuncture, moxibustion and Chinese Herbal Medicine) to the West. The spread of TCM was described mainly during the nineteenth and twentieth century. Chinese medicine was spurred on by the UK's 100-year involvement in Hong Kong that led to immigration from the colony. In the USA in the 1849 the Gold Rush in California brought a large influx of Chinese people to western USA (Kayne, 2002). The popularity of Chinese medicine was apparent in that the Chinese government in the 1950s put great effort to modernisation of Chinese medicine. Therefore, Kayne (2002) highlighted that in China, Chinese medicine is concurrently provided to the population alongside western medical practices.

While the Greeks were also known to have used aromatic oils and essential oils in warfare to stimulate aggression and heal battle wounds, there is also evidence of use of a medical encyclopaedia of a first-century Greek surgeon in Nero's Roman army (Kayne, 2002). This included, for example, the practice of using oils to treat illnesses, reputed to be at least 6000 years old, and to have followed the westward

course of civilisation beginning in oriental cultures of China, India, Persia and Egypt (Kayne, 2002). The word 'aromatherapy' was said to have entered the English language in the early 1980s to describe the use of fragrant essential oils to affect or alter a person's mood or behaviour.

Also, some other alternative medicine dates to very recently in the 1800s and contrary to previous forms has origin in the West. However, in the origin of alternative medicine the UK has not been likened to America. For example, Kayne (2002) reported that the practice of osteopathy was developed in the USA in the 1870s by an American frontier doctor, Andrew Taylor Still who founded the American School of Osteopathy at Kirksville, Missouri in 1892. Another example was Rolfing, an alternative medicine that employs deep massage technique. This was named after its founder Dr Ida Rolf an American- born biochemist and physiologist who established the Rolf Institute for Structural Integration in 1970. These are in contrast to other alternative medicine that involves manual therapies like reflexology. The ancient Egyptians were aware of the benefits of foot and hand reflexology, which dates back to around 2500 BC (Kayne, 2002). Homeopathy was attributed to a German physician and apothecary Samuel Hahnemann, yet one of the homeopathic laws is attributed to an American homeopath Dr Constantine Herring. While the practice of manipulations is said to date back to ancient times, its popularity in modern times is attributed to Daniel David Palmer a self-educated scientist from Iowa around the 1800s. In fact, for the discipline of chiropracty, its practitioners in the USA are said to be third in number behind physicians and dentists (Kayne, 2002).

Medicine as a whole in the West was said to have taken significant changes in the nineteenth century. However, Conrad *et al.* (1995) claimed that the enormous range of medical developments was in the twentieth century. This marked a new age in medicine which was vastly different in scale and possibilities from what had gone before. Specifically, the revolution of medicine in the West in general was described by the authors from medieval Western Europe as being from 1000 – 1500, to medicine in early modern Europe from 1500 – 1700 and the eighteenth century (Conrad *et al.*, 1995).

Similarly, according to the report by the House of Lords (1999), during the twentieth century Western medicine underwent an unprecedented era in the quest for solutions to physical problems encountered by human beings. This perspective of modern Western medicine dates from the first synthesis of a pure chemical aid to the resistance of pain, namely the 1899 invention of acetylsalicylic acid, under the drug name, aspirin, by a German company called Bayer. In the wake of the pronounced success of aspirin, efforts among companies to produce today's supply of drugs to help cure ailments have grown culminating in the global empires of pharmaceutical companies.

2.1.2 Present era

The subsequent discussions involve definitions referencing alternative medicine distinctively from conventional healthcare practices in what is now to be the present era or new age of Western medicine. Reiterating, the adopted definition was that the term 'alternative medicine' in this thesis would refer to a diverse group of health-related therapies and disciplines falling outside the mainstream medical care in the UK (House of Lords, 1999). These other definitions are considered equally suitable. However, the case is that some of the definitions were thought to be less adequate compared to the definition adopted for the thesis (Chapter 1, Section 1). Thus, the other definitions are not rejected, but their less preferred context will be discussed.

Also, the preferred term 'alternative medicine' will be used mainly in the thesis. It was arguable that the use of either term alternative medicine or complementary medicine fits into current convention in contrast to other pejorative terms such as fringe, unorthodox or folk medicine. The argument explaining the preference for the term alternative medicine in this thesis has already been given (Chapter 1, Section 1.1.1-2).

Other definitions include, for example, that by the National Centre for Complementary and Alternative medicine (NCCAM) defining alternative medicine as a group of diverse medical and health care systems, practices, and products that are not generally considered part of conventional medicine (NCCAM, 2011).

In comparison the definition adopted from the House of Lords (1999) provided a stricter distinction between alternative medicine and the mainstream medical care in the UK. Having said that, in a systematic review of published literature Bishop and Lewith (2008) reported that the most commonly cited definition of complementary and alternative medicine (CAM) in the majority of the studies was that formalised by the NCCAM. This was however not surprising since the studies in the systematic review had included those conducted mainly in the US (70 (64%) of 110 studies included in their review).

It was deemed that a misinterpretation of a definition by those with other cultural views will be more likely in the definition adopted by the Cochrane Collaboration that has been cited by some UK authors. Alternative medicine was defined, according to the Cochrane Collaboration, as a broad domain of healing resources that encompasses all health systems, modalities, and practices and their accompanying theories and beliefs, other than those intrinsic to the politically dominant health system of a particular society or culture in a given historical period (Zollman and Vickers, 1999b; Kayne, 2002).

Another definition of alternative medicine that was not suitable for presentation as a diagnosis, treatment and/or prevention which complements mainstream medicine by contributing to a common whole, by satisfying a demand not met by orthodoxy or by diversifying the conceptual frameworks of medicine (Ernst *et al.,* 1995). The questionable use of the term orthodoxy did not seem appropriate with respect to modern perception, as explained in Chapter 1.

The dual use of the term traditional medicine was also unsuitable for this thesis. The term traditional medicine has been used for conventional medical approaches that come from traditional society (Prioreschi, 2000). On the other hand the WHO definition that the terms “complementary medicine” and “alternative medicine” are used interchangeably with “traditional medicine” in some countries. This refers to a broad set of healthcare practices that are not part of that country's own tradition and are not integrated into the dominant healthcare system (WHO, 2011a). Thus, this definition was also considered to be unsuitable here due to individual cultural variation in interpretation.

2.1.3 Current practices

In the historical overview of alternative medicine it was shown that, according to the literature, alternative medicine has different origins (Section 2.1.1). While this was not dealt with in the depth needed to reflect the wide range of the varieties of practices involved, it would be too large a scope to go into each single practice.

In current practice about 700 different treatments and a large variety of diagnostics methods of different types of alternative medicine practices are said to be available (Kayne, 2002). The British Medical Association (1986) reportedly had identified 116 types which was higher than the number cited by Petroni (1986) who suggested 80 or so different approaches. Kayne also (2002) suggested that this number may have increased by now.

Within alternative medicine there have been different attempts to classify the practice of alternative medicine. For example, Petroni (1986) subdivided alternative medicine approaches into four classifications. On the other hand the House of Lords (1999) used three main groups based on the approach to diagnosis (Table 2.1). The House of Lords (1999) classification, also cited by Zollman and Vickers (1999b) and Kayne (2002), gives an idea of the representation of the different alternative medicine possibilities in the UK. However, the examples provided by the House of Lords (1999) in Table 2.1 as per to the suggested estimate of Kayne (2002), BMA (1986) or by Petroni (1986) constituted a very small proportion of all practice in the UK.

Table 2.1: Classification of alternative medicine practices

Classification of alternative medicine practices	alternative medicine practices
Group 1 Also called the principal disciplines. Evidence has indicated that each of these therapies claims to have an individual diagnostic approach and that these therapies constitute the 'Big 5' by most of the complementary and alternative medicine world. Are increasingly being provided by the NHS *are already regulated in their professional activity and education	Acupuncture *Chiropracty Herbal medicine Homeopathy *Osteopathy
Group 2 Contains therapies used most often to complement conventional medicine and make no effort to embrace diagnostic skills.	Alexander Technique, Aromatherapy, Bach and other flower remedies, Hypnotherapy, Body work therapies e.g. Massage, Meditation, Nutritional Medicine, Reflexology, Shiatsu, Spiritual Healing, Yoga, Counselling Stress Therapy, Marish, Ayurvedic Medicine
Group 3 Embraces those other disciplines, which purport to offer diagnostic information as well as treatment and which, in general, favour a philosophical approach and are indifferent to the scientific principles of conventional medicine, and through which practitioners propose various and disparate frameworks of disease causation and its management. These therapies are divisible into two subsidiary groups. Group 3a Includes long-established and traditional systems of healthcare. Group 3b Covers other alternative disciplines which lack any credible evidence base	Group 3a: Anthroposophical medicine Ayurvedic medicine Chinese herbal medicine Eastern medicines Naturopathy Traditional Chinese medicine Group 3b: Crystal therapy Iridology Radionics Dowsing Kinesiology

This classification is according to House of Lords (1999) and was also cited in Vickers and Zollman (1999a). It gives an idea of representation in the UK. However it is not a standard for classification and examples constitute a small proportion that may be used in the UK. According to other sources about 80 to 116 was suggested (Petroni, 1986; BMA, 1986) and as high as about 700 practices are suggested exist (Kayne, 2002).

2.1.4 Access to alternative medicine in the UK

In spite of the practice of conventional healthcare being the established system of healthcare in the UK the practice of alternative medicine is recognised and provided within the main healthcare system in the UK. The first alternative medicine recognised in the UK health system was homeopathy, predating the inception of the National Health Service (NHS) in 1948 (Kayne, 2002; Zollman and Vickers, 1999a). Since then other forms of alternative medicine have been provided by the NHS (Table 2.1). As seen (House of Lords, 1999, Table 2.1), the NHS in the UK now offers some form of alternative medicine to patients.

Zollman and Vickers (1999a) reported that in the primary and secondary sectors of the formal health system in the UK most alternative medicine delivered through the

NHS is said to be provided by the primary care sector. About 20% of the primary healthcare teams provided some form of alternative medicine directly. However, the alternative medicine practitioners are said to be without a background in conventional healthcare work in at least 20% of UK general practices and likewise in the secondary care sector. This estimation was not based by the author on any statistical data; hence the accuracy of the figures might not be exact. The availability was said to vary and depended greatly on interest and a high level of support.

Access to alternative medicine remained mainly outside the conventional healthcare settings in the UK (Section 2.1.5, Section 2.3 and Section 2.4).

2.1.5 Regulation and policies affecting practitioners and sales of products

The conventional healthcare trained practitioners in the UK such as medical practitioners or pharmacists have single bodies and are regulated by law (BMA; GPhC). In contrast, apart from osteopathy and chiropractic types of alternative medicine that have statutory regulations in the UK, all other alternative medicine disciplines did not operate under a uniform binding set of laws (House of Lords, 1999). As found in a study of practitioners across regions in the UK it was reported that there were variations in levels of education of practitioners of all alternative-medicine therapies with a high number of proportions of lay therapists offering consultations to the public (Fulder and Munro, 1985).

A limit to non-statutory regulation of alternative medicine practices in the UK highlighted by the select committee was that the disciplinary codes of self-regulatory bodies operated by the majority of alternative-medicine disciplines meant that if a practitioner or therapist incurred a penalty for misconduct, s/he might still be able to register under another body (House of Lords, 1999). Another drawback observed even with those forms of alternative medicine that enjoyed statutory regulation was ‘clinical freedom’, which allowed everyone to make individual health choices. In addition, to the ‘common law right’ to practice medicine in the UK, in the form of offering medical services, so long as the practice made no use of the name and medicines licensed under the Medicines

Act of 1968. Therefore, anyone could offer healthcare services to the public, and practitioners of alternative medicine had no need to be licensed (House of Lords, 1999).

At the outset of this research programme, products marketed under the exemption provided in Section12 (2) of the Medicines Act 1968 as non-medicines required no marketing authorisation on standards, safety, quality, efficacy or recommendations on indicative information for consumers (DIRECTIVE 2004/24/EC, RPSG report 1999). No standards on the level of knowledge, expertise or quality control were required for a manufacturer of an unlicensed herbal remedy.

The risk of non-regulation of herbal medicines or dietary supplements, especially those that can be sold as being food or cosmetics continues to pose a risk to public health. Although reforms were proposed in 2004 regarding regulations for marketing and licensing of herbal remedies, the decision was not to be established until 2011 (MHRA, 2011). At this time it became mandatory to give information on safety in order that consumers could make informed decisions.

Ultimately while the regulatory agency is taking significant responsibilities this can no doubt be accompanied by research. Such research would be useful to identify what is prevalently used and testing of the constituents would inform current regulation. The intention was therefore also a feature of the original research programme in the background (Section 1.2) to identify and test to compare what is commercially prevalently used in the West with an Eastern population in Hong Kong, China (Section 2.1.1, historical overview).

2.2 Barriers to Recognition of Alternative Medicine

One significant controversy concerning alternative medicine is its safety and efficacy profile; this is particularly the case in Western developed countries such as the UK. Because alternative medicine is not routine in the health system (Section 2.1.2- Section 2.1.5) knowledge of the extent of different outcomes was not well known.

2.2.1 Safety profile

An adverse drug reaction (ADR) refers to an unwanted or harmful reaction experienced after the administration of a drug or combination of drugs under normal conditions of use, with the suspicion that the reaction is a consequence of the drug (Lee, 2006).

In comparison to conventional medicine the safety of alternative medicine remains a hazy area of knowledge. There was convincing evidence of adverse reactions even with physical forms of alternative medicine otherwise thought to be safe (Mumm *et al*., 1993). For example, in the case of a 64-year old female patient admitted to hospital for a suspected myocardial infarction, further analysis of antibody titre gave rise to the diagnosis of *Herpes zoster* (shingles). The patient claimed to have been treated for three days with an overtly vigorous Shiatsu massage (Mumm *et al*., 1993). In another example aristolochic acid, a harmful substance present in *Aristolochia* species was the cause of cases of Chinese herbal nephropathy (CHN) after people consumed Chinese herbs (Cosyns *et al*., 1999).

A specific interest in herbal remedies and dietary supplements was that they may interact adversely with conventional drugs, rather than merely causing adverse reactions on their own (Williamson *et al*., 2009, p.6). A drug interaction is when the effects of one drug are transformed due to the presence of another substance, including herbal medicines, food, drink, or environmental agents (Griffin and D'Arcy, 1997; Williamson *et al*., 2009, p.6). Herbal remedies and dietary supplements are like conventional drugs in that they are pharmacologically active and because of their intake into the systemic circulation there is a greater risk of adverse reactions. The potential interaction between herbal remedies or dietary supplements and conventional drugs is still a grey area; there are theoretical and clinical cases found that have been collated by Williamson *et al*. (2009).

2.2.2 Efficacy

Little is known of the efficacy of most alternative medicines and their effect on users. Further, some reports are contradictory. In a study on feverfew, Vogler *et al.* (1998) reported that it helped to overcome migraine; however, in contrast, two others had found that it had no effect, and Vogler had questioned their methodology. In another review it was reported that homeopathy has a more appreciable effect than a placebo (Linde and Jonas, 1997). However, in this same review it was reported that no studies had shown that homeopathy was clinically efficacious for any single condition.

The evidence of efficacy continues to be the basis of debate, Tonelli & Callahan (2001) questioned if the practices of alternative medicine should rely on the rigour of the scientific methods, which prevail in efficacy assessments in conventional medicine.

Effectiveness is patient-oriented, referring to outcomes measured or perceived under fieldwork conditions (Kayne, 2002). However, effectiveness perceptions differ widely among patients and in many cases between patients and their prescribers. Part of this divergence may be due to the possibility of identifying two treatment outcomes according to Kayne (2002). First, clinical characteristics of patients may constitute the observation of resolution of symptoms, a decrease in discomfort, or a judged need to take less medication. Second, the patient's overall feeling of wellness is an important consideration. This judgment is subjective and may vary from day to day. Patients differ in their ability to deal with disease and this may be reflected in the perceived success or otherwise of the treatment.

Efficacy, on the other hand, means measurable under controlled conditions, usually a randomised control clinical trial, which is the standard requirement of the Medicines Control Agency (now MHRA) before granting a licence (Kayne, 2002). This is quite difficult with alternative medicine (Linde and Jonas, 1997.; Vogler *et al.,* 1998).

Amidst the controversies associated with alternative-medicine practices, it is impossible to discount its success in the field. Many drugs used in conventional medicine are the product of discovery from alternative medicine, and breakthroughs continue to occur. Some of the most useful conventional drugs are derivatives of herbal sources, including aspirin and digoxin (Gillan and Rahman, 2005). Survey evidence of anecdotal reports considered useful in drug discoveries continues today (Gillan and Rahman, 2005; Ashidi *et al*., 2010).

The evidence of effectiveness of alternative medicine use in relation to participant satisfaction in terms of important effects such as coping, maintenance and prevention of illness are being informed through reports in studies (Furnham and Forey, 1994; Vincent and Furnham, 1997). The usefulness is that patient satisfaction and the perception of effectiveness of alternative medicines have allowed referrals and inclusion of alternative medicine within the conventional setting (Thomas *et al*., 1991; Zollman and Vickers, 1999a).

2.3 Trends in Alternative Medicine Use in the UK

The literature review (Section 2.1.1-2.1.4) shows evidence of alternative medicine use currently in the UK. This continues with evidence of its present popularity as with the review of the published studies in literature. The purpose of a literature review was to evaluate all available research evidence relevant to provide knowledge of the prevalence of use of alternative medicine in the UK.

2.3.1 Literature search of published studies of prevalence of use of alternative medicine by the general population

A literature search was conducted for primary studies in which the prevalence of use of alternative medicine had been investigated among the general population in the UK in February 2006. This was initially started out at the outset of the research programme but was continuously reviewed and updated. This involved a search through scholarly databases and cross-checking references of citations of published studies. The accessed databases were multidisciplinary in the UK Science Direct (www.sciencedirect.com), Cochrane Library (www.cochrane.org;

www.cochranelibrary.com), Google scholar (www.scholar.google.co.uk) and PubMed (www.ncbi.nlm.nih.gov). A specific database relating to alternative medicine that was accessed was the Centralised Information Service for Complementary Medicine (CISCOM) the database for the Research Council for Complementary Medicine. Search terms used included one or combinations of the following terms “alternative medicine”, “complementary medicine”, “complementary therapies” and “herbal medicine”. They were used with the terms use or prevalence and to narrow the search were used in conjunction with the words and / in / among population or public in the UK. Alternative medicine has been referred to by other terms, it was therefore also necessary to include such terms that have been used by other authors (Chapter 1, Section 1.1).

2.3.2 Overview of the published studies from the literature review

In systematic review approaches, a rigorous attempt is made to identify all relevant primary research, a standardised appraisal of study quality is made and only the studies of acceptable quality are systematically synthesised (Greenhalgh, 2001). Thus, details of all primary studies may not be included in a report of systematic reviews. In this literature review it was necessary to consider additional primary studies which may not have been included in systematic reviews.

A total of eight primary studies were found in which the prevalence of use of alternative medicine in the UK had been investigated amongst the general population (Table 2.2). Initially only four primary studies were identified (Emslie *et al*., 1996; Ernst and White, 2000; Thomas *et al*., 2001; Emslie *et al*., 2002). The review of systematic reviews (Ernst, 2000a; Harris and Rees, 2000) was useful to identify two other primary studies (Yung *et al*., 1988; Vickers, 1994). A later update of the literature resulted in identifying one additional systematic review (Bishop and Lewith, 2008). This was useful to the literature review and gave rise to the identification of two additional studies (Harrison *et al*., 2004; Cappuccio *et al*., 2004).

In a population study conducted in 1993 among 341 respondents it was reported that 1 in 3 (29%) had used one or more of the eight alternative medicine therapies

under investigation (Emslie *et al*., 1996). They reported six years on in a subsequent 1999 trend study by self- completion postal survey of 432 respondents from 800 people. An increase was found for at least one of the eight therapies investigated to 41% (Emslie *et al*., 2002).

In contrast in a regional BBC general population telephone survey in the UK in 1999 contemporary with the second study of Emslie *et al*. (2002) a lower prevalence of 20% of the population studied was reported to have used some form of alternative medicine in the last year (Ernst and White, 2000). In addition, in the same study, regional variation was reported with report to prevalence of alternative medicine use. This was lower in South England (23%) and much lower in the Midlands (16%) and North England (11%). Only in the Wales (32%) (Ernst and White, 2000) was the prevalence higher.

A year earlier in a larger study of geographically stratified 5010 random sampled (2669 responded) postal questionnaires of the adult population in England in 1998 it was reported that use in the past 12 months of the same sample in the same study was 28.3%. However lifetime use was higher at 46.6% (Thomas *et al*., 2001). It was also reported that if only practitioner contact of the 5010 adults was studied, excluding self-care using remedies bought over the counter, then alternative medicine use declined to 10.6%. This was extrapolated to an estimated 22 million visits of the adult population in England to have visited at least one of the six established practitioners of alternative medicine (Thomas *et al*., 2001). This was in contrast to the interview survey of alternative medicine practitioners in 1980-1981 of nine UK regions that had reported lower annual consultation rates per 100 population (19.5 - 25.7 (11.7-15.4 million consultations)) and in this study also it was revealed that practitioners per 100,000 populations differed in regions (Fulder and Munro, 1985).

The first systematic review of Ernst (2000a) covered general populations of different Western countries. Only 12 survey studies out of 100 papers were included due to different methodology having been used. Different prevalence of use of alternative medicine was reported across different countries in the systematic review. Nonetheless, the studies included still varied in terms of

sampling. The method of data collection varied from personal interview to postal survey questionnaires. Only two of the studies were from the UK, one of which was the Emslie (1996) study discussed above. The second study consisted of random sampled adults from the UK electoral registers who were contacted using postal questionnaires (Vickers, 1994). In this study, the prevalence of alternative medicine was studied, but this was only broached in terms of consultation of six named forms of alternative medicine and any other specialist in alternative medicine in the past 12 months. The combined one-year prevalence, reported to be 8.5%, was much lower than the previous studies. For Emslie (1996), the prevalence of use according to lifetime use was reported but only with respect to some forms of alternative medicine; this was estimated to be 33%. This was lower than previously stated in the previous studies above (Emslie *et al*., 1996; Emslie *et al*., 2001; Thomas *et al*., 2001).

In the second systematic review covering 638 papers, methodology was also varied. As a result, the authors were only able to use 12 of the 638 papers (Harris & Rees, 2000). Out of these studies meeting their criteria in the review, the lowest prevalence of alternative medicine was reported to be 2.6% and 8.5% from the two studies in the UK (Thomas *et al*., 1993; Yung *et al*., 1988). One of these was a feasibility study (Thomas *et al*., 1993) which subsequently led to one of the studies discussed above (Thomas *et al*., 2001) and the other a study conducted much earlier (Yung *et al*., 1988). Interestingly, Harris & Rees (2000) had proposed that the best estimates for the UK came from the study of Thomas *et al*. (1993) because this study does not claim to be representative of the UK population. The study conducted by Yung *et al.* (1988) had included a six-time larger sample size, 4268 and the geographical setting had included only residents of city of Cardiff and Wales in the UK.

The third, a recent systematic review (Bishop and Lewith, 2008 on the general population, gave a wider picture of the general demographics in alternative medicine use (Table 2.2). Out of 824 articles retrieved from the database the authors included 110 studies that had met their inclusion criteria. 70 (64%) were carried out in the US, 10 (9% in Australia, coming third 5 (5%) in the UK and 4 (4%) in Canada. Other studies were carried out in Israel, Turkey, Italy, the

Scandinavian countries, Asian countries, South Africa and North America. However, only one study (Harrison *et al*., 2004) in the UK was included in the general summary of their findings. The study was a postal questionnaire based study conducted in 2001 sent to a sample of a larger population study of 15,465, from the adult population in North West England. A lower prevalence of use of alternative medicine of 12.8% was obtained and the study was focused on use of at least one herbal supplement. The findings from other studies like Thomas *et al*. (2001) previously included in the literature and another study Cappuccio *et al*. (2004) (Table 2.2), were both found cited in their systematic review, but not extensively included in detail in their review.

2.3.3 Conclusion from the literature review

The literature review showed evidence of use of alternative medicine among the general population in the UK, but the prevalence of use of alternative medicine reported varied between studies. This wide range made it difficult to assess the prevalence of use of alternative medicine. There was significant growth of alternative medicine use indicated in two studies (Emslie *et al*., 2002; Thomas *et al*., 2001). However, this was not conclusive. The studies also were rather dated and therefore did not provide current up to date knowledge of prevalence of alternative medicine. These studies had mainly focused on small samples or within a region and generalisation to other populations could not conclusively be made. For example, one of the largest studies, the study by Yung *et al*. (1988), was not representative of the UK population. On the other hand the largest and most recent study was only focused on one type of alternative medicine (Harrison *et al*., 2004). The studies varied in their methods of data collection such as postal questionnaires and interviews. Focus on only one or few forms of alternative medicine may have resulted in underestimation of the prevalence of use of alternative medicine.

There was clear evidence of the use of alternative medicine within the general population in the UK. However, new insight was needed to give current knowledge that could be representative of the general population with a wider scope of alternative medicine, which the previous studies may not have given. In addition it

was to be of relevance to knowledge to have a cross cultural comparison with an Eastern culture at the same time where alternative medicine continues to be part of the main healthcare (Chapter 1, Section 1.2, and Chapter 2, Section 2.1.1) was thought would be insightful. This was to provide a large reliable population estimate of current knowledge of alternative medicine use in the UK and to increase understanding of different cultural perceptions in this modern time.

Table 2.2 Summary of published studies of prevalence of use of alternative medicine by the general population in the UK

Studies by increasing year of publication	Sample size and region of study	Sampling	Method of data collection	Scope of alternative medicine covered	Prevalence of use of alternative medicine reported in the study	Prevalent types of alternative medicine	Demographic predictors of alternative medicine use	Common indications for using alternative medicine	Sources of recommendation	Disclosure of alternative medicine to healthcare professional
Yung *et al.,* 1988	2.5 % (5,145 persons) sampled response 4,268 (70% response rate) people 18 and older	Systematic randomly selected adult of the 1986 electoral register for four parliamentary constituencies of Cardiff residents	Postal questionnaires	In the last year any sort of treatment other than on the National Health Service (NHS)	113 (2.6 %) some of complementary medical treatment not on the NHS in previous year	Osteopathy, chiropracty, physiotherapy, acupuncture, herbal treatment, homeopathy, psychotherapy, hypnosis, reflexology and iridology *The costs and satisfaction (as measured by patient reports of treatment making them feel better) associated with the five most common forms of treatment	Not specifically reported. Except reported age and sex of 113 users was close to that of the population which were drawn. However that there were variations with both the social class and level of education within group (with highest among University and ten college users)	Not included	Not included	53 % cases only informed the GP, highest for osteopathy and chiropracty and lowest for acupuncture
Thomas *et al.*, 1991	2473 patients who had attended a representative sample of 101 responding non-medical practitioners s after a postal survey of 2152 practitioners (of which 1575 replied, response rate range between 60 % to 86 %) of acupuncture, chiropracty, homeopathy, naturopathy and osteopathy from 11 national professional association registers in England, Scotland and Wales in August 1987 and July 1988	Stratified random sample of 146 active practitioners identified from an initial postal survey conducted in March 1987, of 2152 practitioners identified from the registers of 11 national professional associations representing practitioners in the six disciplines (See also Sample size)	Postal survey questionnaire	Non-medical practitioners of acupuncture, chiropracty, homeopathy, naturopathy or osteopathy	An estimated 1909 practitioners were actively practicing one of the study treatments in Great Britain in 1987. Of 70600 patients seen	Main treatment offered by membership of professional association according in descending order for estimated numbers of registered non-orthodox practitioner in 1987: osteopathy, acupuncture, chiropracty, homeopathy, naturopathy with osteopathy, medical herbalism, homeopathy	Two thirds (63 %) of the patients were women 2 % aged under 16, 20 % were 45-54 years followed by 19% 55-64 years consulting on-orthodox health care practitioners	Musculoskeletal (78.2%) vs. 4.6 % psychological. Other higher than psychological included neurological problems (5.6 %)	Not included, but see scope of alternative medicine covered	Not included
Vickers (1994)	78 % (718 respondent) response of random 921 adults from UK electoral registers	See sample size	Postal questionnaire	"Have you consulted a practitioner of any name of the following therapies (six named, see nest column) or any other specialist in complementary medicine in the past 12 months"	Crude estimate of the named six therapies in the previous 12 months acupuncture, chiropracty, osteopathy, homeopathy, herbal medicine and hypnotherapy use was 8.5%. Lifetime use estimated as 16.9 % Continued in prevalent types of alternative medicine	See previous column prevalence of use, use of other complementary therapies in the previous 12 months (for example spiritual healing and aromatherapy) was estimated at 2 % a year. A quarter had purchased over the counter homeopathic or herbal remedies at least once. Roughly two thirds of these individual had never visited a practitioner , giving an estimated lifetime use of some complementary medicine of 33 %	Not included	Not included	Not included	Not included
Emslie *et al.*, 1996	341 (70%) of 500 individuals aged 18 and	Population survey of random sample of Grampian	Precoded, self-completing postal	Focused on eight complementary therapies: acupuncture,	1 in 3 of the respondents having already used some form of complementary	Mostly used osteopathy and aromatherapy 33 (35 %) and 32 (%) respectively	Not included	Not included	58 % recommendation by a friend or colleague, 28 % indicated that a	Not included

Studies by increasing year of publication	Sample size and region of study	Sampling	Method of data collection	Scope of alternative medicine covered	Prevalence of use of alternative medicine reported in the study	Prevalent types of alternative medicine	Demographic predictors of alternative medicine use	Common indications for using alternative medicine	Sources of recommendation	Disclosure of alternative medicine to healthcare professional
Emslie *et al.*, 1996...continued	over from the population of approximately 50, 000 of Grampian Region of Scotland using the Community Heath Index (a population health register) to ensure that the resulting survey estimates would fall within 55 of the true population with 95 % confidence	residents in April 1993	questionnaire	aromatherapy, chiropracty, herbalism, homeopathy, hypnotherapy, osteopathy and reflexology and hypnotherapy	medicine 96 (29 %) had used complementary therapies 192 (56 %)would consider using some of the listed therapies, 67 % versus 41 %, X^2, $P < 0.001$ would consider using who knew of someone using than those who did not.	General awareness of the different types of complementary therapies with having heard of acupuncture (94 %), followed by hypnotherapy 251 (74 %) and osteopathy 240 (71 %), reflexology was last (54 %) followed by chiropracty (56 %), aromatherapy (66%) was higher than herbalism and homeopathy both (63 %) Those who would like to be available on NHS had similar result but herbalism (22 %) was last this time followed by aromatherapy (24 %) Out of does who would consider osteopathy 87 (45 %), acupuncture 85 (44%) and aromatherapy 76 (40 %) followed by Chiropracty, reflexology, homeopathy, hypnotherapy and herbalism			doctor or health professional had either referred or had recommended, others: read in magazine or book (23%), practitioner known to me (20 %), local clinic available (10 %), looked up in telephone directory (1%), others not listed (6 %)	
Ernst and White (2000)	1204 British adults aged 18 and older in August 1999 (a week)	Weekly omnibus National random telephone survey (using random-digit regions of the UK	Telephone verbatim interviews (five questions were formulated through discussions between BBC and ICM (British Broadcasting cooperation and live communication a market research organisation)	Used any alternative or complementary medicines or therapies within the last year, at least once	20 % used CAM in the previous year	Most popular treatment modalities were herbalism, aromatherapy, homeopathy, acupuncture/acupressure, massage and reflexology Less than 5 % answers: osteopathy, flowers remedies, chiropracty, Chinese medicine, yoga, healing...	Females reported higher than males, highest in the age group between 35 and 64 years Regional usage was highest in Wales (32 %) and South East England (23 %) and lowest in the West Midlands (16 %) and North England (11 %)	Not included	Not included	Not included
Thomas *et al.*, 2001	Adult population of England in 1998 of 5010 resulted in crude response rate of 60% with usable response rate of 59% (2669)	Geographically stratified random sample of 5010 adults in England	Postal questionnaire survey	Focus on practitioner contact, but also asked about purchase of over-the-counter remedies Population estimates of lifetime use and use in past 12 months for acupuncture, chiropracty, homeopathy, hypnotherapy, medical herbalism, osteopathy, reflexology aromatherapy and over-the-counter purchased herbal remedies and homeopathic	10.6% had visited at least one therapist providing any one of the six more established therapies in the past 12 months (13.6 5 for use of any of the eight named therapies). Estimate rise to 28.3% if all eight therapies and self-care using remedies purchased over the counter are included for use in the past 12 months and 46.6% for lifetime use. An estimated 22 million visits were made to practitioners of the six established therapies in 198	Over-the counter herbal remedy, over the counter homeopathic remedy, Osteopathy, chiropracty, aromatherapy, acupuncture, homeopathy, reflexology, medical herbalism See also scope of alternative medicine covered Respondents were reported to have mentioned other therapies: shiatsu massage, reiki, nutritional therapy, massage, Bowen technique, kinesiology, tai chi, faith healing, chakra balancing, traditional Chine medicine, allergy testing, and cranial sacral therapy	All types of use declined in older age groups, and more commonly reported by women than men ($P < 0.01$)	Seventy one percent of the visits to practitioners of one of six therapies were for musculoskeletal problems, 15 % for other health problems and 8 % for general health maintenance	Not included	Not included
Cappuccio *et al.*, 2001	South London of 1,577 men and women, aged 40-59 years (883 women, 523			prevalence of regular users of alternative medicines and the predictors of	10.4% (164/1,577); 7.4% (116) made regular use of non-prescribed vitamin supplements, whereas 5.3%		When adjusted for age, ethnicity and social class, women were more likely than men to use at least one alternative medicine (OR 2.09 [95% CI 1.45-3.00]). This was true both	Not included	Not included	Not included

Studies by increasing year of publication	Sample size and region of study	Sampling	Method of data collection	Scope of alternative medicine covered	Prevalence of use of alternative medicine reported in the study	Prevalent types of alternative medicine	Demographic predictors of alternative medicine use	Common indications for using alternative medicine	Sources of recommendation	Disclosure of alternative medicine to healthcare professional
Cappuccio *et al.*, 2001... continued	White, 549 of African origin and 505 of South Asian origin),			regular use of non-prescribed vitamin supplements, cod liver oil, primrose oil, and garlic	(84) used cod liver oil, primrose oil, or garlic preparations.		for vitamin supplements (1.98 [1.29-3.03]) and for oil or garlic supplements (1.91 [1.17-3.14]). The use of oil or garlic (P<.005) but not vitamin supplements (P=.32) varied by ethnic group. In particular, Black people of African origin were more likely to use alternative medicines than either Whites (1.78 [1.07-2.94]) or South Asians (1.66 [1.07-2.59]), the least common users. These associations were not attenuated by further adjustment for body mass index, smoking, marital status and age at leaving full-time education.			
Emslie *et al.*, 2002	432/800 (54 5) response among residents of North East Scotland Population survey carried out in 1999, 6 years after the initial study Emslie *et al.*, 1996	The study sample was obtained from the Grampian Evaluations Joint Board- a local comprehensive register of persons, resident in Grampian and eligible to vote- access to the sampling frame used in 1993 survey – the community health index was no longer available	Postal survey	To examine eight CAMs; acupuncture, aromatherapy chiropracty, herbalism, homeopathy, hypnotherapy, osteopathy, and reflexology	175 (41 %) had used at least one type of CAM compared to 29 % in 1993 Emslie *et al.*, 1996. Increase in use were statistically significant for aromatherapy (18 % versus 9 %) P value < 0.001, acupuncture (10 % versus 6 %) P value < 0.001 and reflexology (9% versus 3 %) P value < 0.001	See also prevalence of use of alternative medicine The majority of CAM therapist administered 103/166) as opposed to a bought product (commercial products containing aromatherapy oils, homeopathy and herbalism) Aromatherapy was highest (18%) then osteopathy (12 %), homeopathy (10%), reflexology and chiropracty (9 %), herbalism (6 %) and hypnotherapy (55)	Not included	The self-reported primary reasons for using CAM were relief of pain due to headaches or musculoskeletal problems, and for relaxation or relief of stress (The primary reasons for use by type of CAM was reported in study from information about the health problems or medical reason which they had used a therapy).	Most respondents relied on the fact that the therapist was known to them personally or recommended by a friend. One respondent took advice from their general practitioner See also disclosure of use of alternative medicine to healthcare professional	59/157 indicated their GP knew they were using CAM and of these, 14 indicated their GP was administering the therapy (nine for acupuncture, two for homeopathy, two for hypnotherapy and one for Chiropracty). 89/157 (57 %) indicated their GP was not aware they were using CAM, with 5 % unsure
Harrison *et al.*, 2004	70.5% (15,465/21,923) Adults; 5 % systematic regional sample, North West England mean age of responders was 49.8 years (SD 17.57) and 45.2% (6,986/15,465) were men	See sample size	Postal questionnaire	Taking one or more herbal supplements	percentage taking at least one herbal supplement was 12.8% (1,987/15,465	Most common herbal supplement was evening primrose oil, taken by 7.7% (1,186/15,465) of respondents (12.7% of women and 1.1% of men).	Age (46-64 more than younger or older) More likely to be female, white	Not included	Not included	Not included
Harris and Rees, 2000	Systematic review of published research investigating the prevalence of complementary and alternative medicine (CAM) use in the general population	See sample size	Systematic search of the literature. Searches were made of two bibliography database. Medline for all years up to September 1999 and CISCOM, a data-base specializing in	The systematic review examined published surveys addressing the question, 'what proportion of the general public uses CAM?'	Overall estimates for the prevalence of use of CAM as a whole (consultations and /or use of products) also vary. As expected, these estimates tend to be larger than those for the prevalence of consultations alone. According to Harris & Rees, 2000 the two Eisenberg studies have produced the most reliable prevalence	Chiropracty was the most prevalent therapy reported by all studies cited with the exception of Israel (which did not represent adults less than 45 years). Massage tended to be the second most used therapy particularly found to be common in the Finnish survey. In a landmark survey acupunctures was identified as best known therapy, however only one study showed more than 2 % of respondents reporting its use	Not included	Not included	Not included	Not included

Studies by increasing year of publication	Sample size and region of study	Sampling	Method of data collection	Scope of alternative medicine covered	Prevalence of use of alternative medicine reported in the study	Prevalent types of alternative medicine	Demographic predictors of alternative medicine use	Common indications for using alternative medicine	Sources of recommendation	Disclosure of alternative medicine to healthcare professional
	12 studies estimated the prevalence of CAM use in Australia, Canada, Finland, Israel , the UK and the USA		the complementary medicine in London for all entries up to August 1999		figures suggest that the number of people using CAM more hand doubles if the definition of CAM includes use of products as well as consultation with therapists	However, see study of Yung et al., 1998 (when checked was highest for osteopathy before Chiropracty).				
Bishop and Lewith, 2008	Systematic review on studies carried out in the general population (i.e. community based rather than clinical) in order to obtain cleared general demographics and health trends in alternative medicine use	110 studies from 824 articles obtained from database Highest number of studies 70 from USA and 4 studies in UK	Comprehensive narrative review from a systematic literature search conducted using six computerised databases (Medline, PsycInfo, AMED, CINAHL, Embase and Web of Knowledge) of published literature between January 1995 and December 2006	To obtain a clearer picture of the general demographic and health trend in CAM use	Not included	Not included	In 124 studies (women are likely to use alternative medicine), 4 studies (men more likely to use alternative medicine) 38 studies (alternative medicine use increase with age), 40 studies (alternative medicine use decrease with age), 35 (curvilinear relationship relationships, alternative medicine peaks in the middle age) Ethnicity, complex and general trends are difficult to ascertain. Nonetheless the review had reported that in 38 reports of test showed that people from ethnic minorities use alternative medicine less than whites, and 15 showing the converse. Education, 128 studies increases with education, 12 studies decreases with education	Not included	Not included	Not included

2.4 Use of Alternative Medicine among Patients in the UK

2.4.1 Rationale

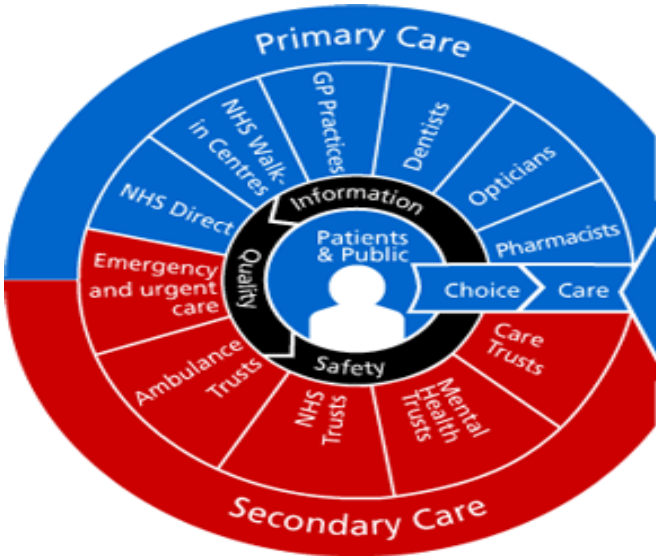
Taking precedence over the general population in the UK (Section 2.3.1) was the interest of use of alternative medicine among patients in the UK and at the time of attending the different healthcare settings. As previously discussed, alternative medicine may be provided or referral can be made. However this is not part of the routine practice in the main healthcare system in the UK (Section 2.1.2-2.1.5). Figure 2.3 is an illustration of the two main healthcare systems in the UK that deal with patients. This is made up of primary care that consists of general practice. The other is the secondary care which involves acute care cases such as those dealt with in a hospital. The interest in both of these patient population settings was stimulated further by this researcher's personal background as a pharmacist with a growing interest in patient safety. Some experience in hospital pharmacy followed by a master degree in medicines management in the UK continued to motivate the research towards this particular direction especially with reference to patients in the latter population setting.

A search through the literature was carried out for published studies in which the prevalence of use of alternative medicine among patients attending the two different levels of the healthcare settings in the UK was investigated. As previously, the search was conducted through different scholarly databases (Section 2.3.1). Some of the same search terms were used. It was useful in narrowing the search to add the terms patients, hospital, primary care, secondary care or conventional setting in the UK. All primary studies identified were then reviewed and also systematic reviews were included to ensure all primary studies were covered.

The literature search was narrowed down to a total of ten published primary studies conducted among adult patients when attending the healthcare settings in the UK, six of which have been summarised (Table 2.4). Five of the studies which focused on cancer patients were found to meet the search aim of this current study (Scot *et al*., 2005; Burke *et al*., 1993; Downer *et al*., 1994; Molassiotis *et al*.,

2005). However, due to consideration of the volume, only one of the studies ((Lewith *et al.*, 2001) (which would become of more important as the current study progressed) was included in the summary.

Primary care is the first point of contact for most people and is delivered by a wide range of independent contractors, including GPs, dentists, pharmacists and optometrists.



Secondary care is known as acute healthcare and can be either elective care or emergency care. Elective care means planned specialist medical care or surgery, usually following referral from a primary or community health professional such as a GP.

Figure 2.3 The National Health Service (NHS) structure in the UK www.nhs.uk/NHSEngland/thenhs/about/Pages/nhsstructure.aspx (reviewed 24/10/2011)

2.4.2 Prevalence of use of alternative medicine by patients attending a conventional healthcare setting

At the time the literature review was conducted and later updated, the study that was conducted by Featherstone *et al.* (2003) in Scotland in the UK had revealed the highest prevalence of use of alternative medicine of 71% among patients or studies conducted among the general population (Table 2.2, Section 2.3). In agreement with their conclusion their findings indicated that alternative medicine

use in primary care attendees was greater than use of alternative medicine reported in the general population. While this was carried out in Scotland the findings would have some similarity to what would be expected in an English setting. However, the prevalence of alternative medicine use reported in the study was from a combination of patients attending six different primary health practices in 2000. The individual practice settings were not separately reported in this paper.

The main thrust of work by Featherstone *et al*. (2003), was on the prevalence of alternative medicine concerning lifetime use while Murray and Shepherd (1993) had reported alternative medicine use over the 10 years before the time of their study. In other instances of studies reporting alternative medicine use specific information was not provided about the time of the prevalence of the use of alternative medicine. For example, in the study of Chandola *et al*. (1999) it was reported that 47 (28%) out of 166 patients attending rheumatology and orthopaedics hospital clinic had tried out the chosen therapy.

In a systematic review by Ernst (2000b) it was reported that there was a prevalence of use of alternative medicine among dermatological patients ranging between 35% and 69%. There was varied usage in seven studies in different countries of which the highest reported use being the only study that was conducted in the UK (Clark, 1998). The prevalence of use was being reported as life-time use of 69% among dermatological patients with psoriasis.

Featherstone *et al.* (2003) had reported only concurrent use of alternative medicine by the patients within the previous month. For a study that had reported current use in 52 of 162 cancer patients (Lewith *et al.*, 2001), the prevalence of alternative medicine use reported was, within the NHS context, to be 14 (25%) of 56 in-patients and 22 (88%) of 27 hospice patients, and 16 (20%) of 79 out-patients. It was assumed that the out-patients were from either within or outside the NHS and unfortunately they had not collected this information in relation to out-patient treatment. In this study, data collection was by the ward staff using a structured questionnaire relating to 14 types of alternative medicine, nutrition (vitamins and minerals) and homeopathy being the only ingested types of alternative medicine.

2.4.3 Demographic distribution of patients using alternative medicine

Only few of the studies provided information on the demographic age, gender and education of patients using alternative medicine. For example, the association of female gender with alternative medicine use was reported in two different studies (Murray & Shepherd, 1993; Chandola *et al*., 1999). Murray and Shepherd (1999) reported that in all age groups up to 64 years, women were more likely to have used non-orthodox treatments**.** There was a rise in usage with age, which peaked at 45 and thereafter declined. At 70 years, there was only one (male) user. The significance with age and education was reported in the study of Featherstone *et al*., (2003). In this a statistical association between the decline in use of alternative medicine and increasing age and lower education attainment was reported.

2.4.4 Methodology of the studies

The limitations of the studies were that they tended to involve small sample sizes, specific to a particular location or region or single practice (Table 2.4). This made generalisation to a wider geographical population of patients in the different healthcare settings difficult. Even though, Featherstone *et al*. (2003) reported on a study of 1174 patients, it was based on consecutive patients attending the six practices in a region, Grampian Tayside in Scotland. A study by Murray and Shepherd (1993) on other hand was of 233 registered practices in inner London chosen within age census. Also, sample sizes were not comparable i.e. 50 patients in the study conducted by Clark (1998). Importantly, none of the studies were carried out at the time identified within the North East region of England.

The studies listed in Table 2.4 varied in the types and numbers of alternative medicine investigated. In the population study of Thomas et al. (2001) it was reported that if only practitioner contact of the 5010 adults studied excluded self-care using remedies bought over the counter, then, alternative medicine use declined to 10.6% from 28.3%. Harris and Rees (2000) had suggested, with respect to their systematic review, that estimates for the prevalence of use of alternative medicine as a whole (consultations and/or use of products) varied in studies. They reported that the estimates tended to be larger than those for the

prevalence of consultations alone. This could explain why the Featherstone *et al*. (2003) study also complied with recommendations by Harris and Rees (2000).

The method of data collection could have an important impact on the findings of the study in terms of response or recall of data. Amongst the studies reviewed the study of Chandola *et al*. (1999) was the only study that had used interview; others had used postal questionnaires. This is probably why they had reported a 99% response rate. The use of interview among patients may be a reason for the high reported prevalence of use of alternative medicine by Clarke (1998) in line with the Ernst (2000b) suggestion that studies that use interviews are more likely to have a higher prevalence of use of alternative medicine.

The variations in prevalence of use of alternative medicine in different specific patient groups in the settings also made extrapolations to all patient groups difficult. For example the prevalence of alternative medicine use reported among cancer patients was 32% (Lewith *et al.*, 2001), 69% amongst dermatological patients (Ernst, 2000) and 28% by patients with musculoskeletal conditions (Chandola *et al*., 1999). In the study of Featherstone *et al.* (2003) the health status of the patients was not reported. Molassiotis *et al*. (2005) had reported that there were significant differences in alternative medicine use among the different cancer diagnostic groups of the sample. Albeit not conducted in the UK, in a study on US use of herbal medicines usage was higher among patients undergoing gynaecology procedure and patients with perception of good health, but lower in patients having diabetes conditions and patients treated by a primary physician (Adusumilli *et al*., 2004). In contrast in another study of individuals with diabetes, similarly in US, those individuals with diabetes were 1.6 times more likely to use alternative medicine than individuals without diabetes (Egede *et al*., 2002).
There was also a lack of consistency in the review in the time estimate of prevalence of alternative medicine use by patients (Section 2.4.2 and Section 2.5).

2.5 Prevalence of Use of Alternative Medicine and Time of Use

It is crucial that time of use of alternative medicine is reported in a study as it may have implication for the prevalence of use of alternative medicine reported.

A decline in the prevalence of use of alternative medicine has been reported in the same study carried among the general population. In two previous studies conducted in the general population setting in 1993, 1 in 3 (29%) and six years on in 1999 a subsequent trend study to 41% (Emslie *et al*., 1996; Emslie *et al*., 2002) was reported. Also, Thomas *et al*., (2001) reported 28.3% over the most recent 12 months which increased to 46.6% lifetime use of alternative medicine amongst UK adults visiting at least one therapist or self-care consultant using remedies purchased over the counter. Similarly there was evidence was from a study conducted in Northern Ireland, in which a lifetime prevalence of 47% dropping to 29% within the previous 12 months (McDonough *et al*., 2007) was reported.

The prevalence of use of alternative medicine reported in patients' studies had also not been that consistent (Section 2.4, Summary of studies Table 2.4).

The time of use of alternative medicine for individuals could have implication for the prevalence of use of alternative medicine. For example in the general population Emslie *et al*. (1996) had reported that 56% of the respondents reported that they would consider use, while only a further 36% of those using alternative medicine indicated that they would possibly consider use (Emslie *et al*., 1996). Similar information was the potential use category in a study of patients, attending a musculoskeletal clinic, who found 63 out of 109 patients using alternative medicine would consider using alternative medicine (Chandola *et al*., 1999).

Table 2.4 Summary of published studies of prevalence of use of alternative medicine among patients attending a conventional healthcare setting in the UK

Studies by increasing year of publication	Sample description and healthcare setting	Sampling	Method of data collection	Scope of alternative medicine covered	Prevalence of use of alternative medicine	Prevalent types of alternative medicine	Demographic predictors of alternative medicine use	Common indications for using alternative medicine	Sources of recommendation	Disclosure of use to healthcare professional
Murray and Shepherd, 1993	233 patients (63% of 372 eligible patients) in an inner London general practice managed by three doctors	A series of six age group censuses, including all patients born in one year selected from six decades, 1910-1960. The six census of age groups were 28, 35, 45, 54, 64 and 70 yrs.	Stage one: Postal questionnaire (brief questionnaire, explanatory letter signed by the GP to all registered patients) Stage two: 20 extended interviews with registered patients known to be users of alternative treatments	Questionnaire listed some of the better known forms of alternative treatment, and respondents were asked to indicate any they had tried	35 (34%) men and 60 (46%) women reported having tried some form of alternative medicine over the previous 10 yrs.	Most commonly used osteopathy (14 5), followed by homeopathy (13 %), massage (11 %), , acupuncture and herbalism (9 %), counselling (7 %), psycho analysis, meditation/ yoga (6 %), aromatherapy (3%), reflexology and alexander technique reported together (5)	In all age groups up to 64 yrs., women were more likely to have used non-orthodox treatments. Rise in usage with age, which peaks at 45 and thereafter declines. At 70 years, there was only one (male) user. Log linear analysis showed a significant interaction effect between attendance and alternative medicine use (G^2 =46.67 with 2 df). There was also significance between these two variables and gender (G^2 =18.629 with 2 df), showing that the effect is different in men than women No significant differences in types of usage by gender or age group	Reasons for use reported for specific: like the use of osteopathy was reported as almost exclusive confined for musculoskeletal problems , massage tried for psychological difficulties and general health improvement as well as pain in the back or limbs, most frequent reason for acupuncture were back pain, headaches and as giving up smoking,. Herbal and 'natural' medicine: coughs, and colds, ear nose and throat problems, skin conditions, asthma, gastrointestinal symptoms were each mentioned by up to 20 % of users. Aromatherapy was used mainly for the promotion of general health (29 %) and to relief stress (43 %0) Counselling mainly for depression and anxiety, hypnosis most as an aid to behavioural changes: to give up smoking or to lose weight	Not included	Not included
Clarke, 1998	50 patients with psoriasis from Hope Hospital Salford a specialist psoriasis clinic in the UK: 23 female and 27 male patients aged 13 to 79 years	Psoriasis	Interview using structured interview	Life time prevalence of use of alternative medicine	Life-time prevalence 69%(34 patients) had tried 81 alternative medicine	Twenty-six per cent of the alternative treatments (21) involved the use of sun-light and non-prescription tanning equip-ment. The remainder embraced a wider range of alternative treatments than those reported in other studies.	Not included	Not included	The most common sources of information were mass media (21), friends and relatives (27), and own 'experience' (13). Ten rec-commendations were from other psoriasis patients and three were from health care professionals.	Not included
Chandola *et al*., 1999	166 patients (99%) attending Hospital clinic general rheumatology and orthopaedic (non-fractured) clinics. The actual location was not stated but	All patients attending clinics in the course of one week were invited and those who agreed to participate on same day	Interview by means of structured questionnaire	Types of therapies that had being considered (no further details was provided)	47 (28%) had tried out the chosen therapy 63 (39%) of the patients had considered the use of complementary therapies for their	Acupuncture, homeopathy, osteopathy and herbal therapy were the most popular types of treatments to be considered	Bivariate analysis: Patients of female gender (P=0.009) and those who expressed dissatisfaction with current therapies (P=0.01) emerged as most likely to have considered complementary	Not included Except inquiry about use of complementary medicine for rheumatologic complaint	Advice from friends and relatives was the second most commonest reason for considering complementary therapies	Not included

	author addressed was London. Mean age (year) 50.4 (range 17-90) Female 103 (62%) White 121 (73%)				conditions		medicine. Other variables did not show any significant differences between the two groups. In multivariable logistic regression model of analysis, both gender (odds ratio 2.738, 95% confidence interval 1.33-5.64) and dissatisfaction (odds ratio 2.67, 95% confidence interval 1.32-5.41) remained independently associated with the consideration of complementary therapies		97% of those thinking about the use of complementary medicine had gained their information from sources other than healthcare professionals	
Lewith *et al.*, 2001	162 responses in a 270 distributed questionnaire: 79 (48%) outpatients, 27 (17%) hospice patients and 56 (35%) hospital inpatient (from 270 (60%) questionnaires distributed: 49% from hospice patients, 63% outpatients and 62% inpatients) Over the age of 18 and were receiving cancer treatment or palliative care as inpatient or outpatient at the Royal South Hants Hospital, Countess Mountbatten House and Oakhaven Hospice Average age of the patients was 59.5 years (range 19-81) with inpatients averaging 54 years (19-81). 42% were male	In the Hospice wards, outpatient department and three inpatient wards the over 3 months	Structured questionnaire distributed by the ward sister to NOTE : study was conducted also by a research nurse	Please put a cross to all therapies you are receiving: Twelve therapies were provided (homeopathy, acupuncture, healing, aromatherapy, reflexology, shiatsu, massage, meditation, relaxation, counselling, music therapy, art therapy, nutritional (vitamin & mineral supplements), Alexander technique) and an option for other	52 of the 162 (32%) respondents indicated they were using currently receiving some form of complementary medicine. Hospice 22 (88%), outpatient 16 (20%), inpatients 14 (25%). Use of CAM varied in the three areas of patient. There was marked difference between the number of patients receiving CAM in the hospices compared to the outpatient and inpatients. See also sources of recommendation 59 patients would consider using CAM	Five most popular treatments were massage, nutrition, aromatherapy, relaxation and reflexology. Twelve of fourteen types were reported use. Alexander technique and Art therapy were not reported. Patients did not report any additional despite included in questionnaire 'other please describe'. Nutrition (vitamin and supplement) and homeopathy was the oral administered CAM that was included.	No included. Other questions were what might limit use and types of therapies they would consider	Not included, but reported expectations of CAM stated by 52 cancer patients: help to feel better, live longer, tolerate other treatment, improve specific symptoms, cure cancer and help in other ways	Not specifically Hospice and inpatients received CAM treatments within the context of their NHS care. Outpatient CAM treatment provided either within or outside the NHS; unfortunately we did not collect this information in relation to outpatient treatment	Not included
Featherstone *et al.*, 2003	1174 adult patients (77% out of which were 348 incomplete from a total of 1987 eligible patients) from 6 Scottish Practices in the Grampian and Tayside regions Mean age (SD) 54 (17) 74.7% female and 35.3.% male	Consecutive patients attending each practice in the same week in September 2000 were invited to complete a postal questionnaire Representative of health centre attenders in the respective practices	Postal questionnaire	Complying with recommendations by Harris & Rees to include CAM remedies in prevalence studies- " complementary and alternative medicines are: Any treatments, self-help techniques or remedies which are out normally provided by doctors and other healthcare professional in the	Concerning lifetime use, 71% reported ever using CAM therapies/remedies, 48% had used 1 or more CAM therapies and 64% had used CAM remedies 39% concurrent use of CAM therapies/remedies (concurrent use was defined as use within the previous month). Of these, 18% had used 1 or more CAM	Not specific, but see prevalence of use of alternative medicine	Significant linear trends in reported CAM use, the proportion of users declining with increasing age (X^2, P<.005), lower educational attainment and house old income and women were using CAM significantly more than women	Not included	Not included But reported: One practice consistently showed the lowest CAM use; it was an inner-city practice in a deprived are where none of the general practitioners offered CAM	Not included

				[National Health service], many different therapies and remedies are available such as...	therapies and 36% had used 1 or more CAM remedies. The proportion of patients reporting concurrent CAM use varied between practices from 23% to 44%					
Shakeel *et al.*, 2008	430 (from 450 (95%) patients admitted to general cardiothoracic and vascular surgery wards Royal infirmary, Scotland 237 (55%) male and half of the patients over 60 years (n=232; 54%) NOTE: reason for admission was recorded from medical notes	Consecutive patients admitted to general cardiothoracic and vascular surgery wards during June and July 2005 (over 8-week period) Reported sample size calculation of 385 patients to detect a 20% prevalence (+- 95% confidence interval of CAM use)	Questionnaire: self-administered and the remaining were too frail to complete questionnaires	Questionnaire included: a tick-list of 48 common herbal preparations and alternative therapies Types of CAM were broadly categorised as herbal or non-herbal treatment. Of those using CAM, 52% (n=150) had used herbal preparations only, 13% (n=39) used non-herbal treatments and 35% (n=102) used both types of therapy. Number of therapies used ranged from one to 18. The most commonly used herbal preparations were cod liver oil (n=150) and garlic (n=47); the most commonly used non-herbal therapies were acupuncture (n=39) and massage (n=31)	A total of 291 (68%) patients had ever used CAM therapies. Of these, 196 had used CAM in the previous year and 95 had used therapies more than 12 months ago. The prevalence of 'ever' CAM use amongst patients admitted to general cardiothoracic and vascular surgery wards was 55%, 6% and 7% respectively	Most commonly used herbal preparations were cod liver oil (n = 150) and garlic (n=47); the most commonly used non-herbal therapies were acupuncture (n=39) and massage (n=31)	Descriptive statistics were used to explore ever versus never use of CAM by demographics, including age, sex, marital status and education (university or college, school qualification only or none). Chi-square tests were used and a *P*-value of 0.05 was considered statistically significant. Respondents who reported using CAM use were significantly younger (less than 60 years ($P < 0.003$)), higher educated and ($P < 0.001$)more likely to be female ($P < 0.001$) (OR 3.03; 95% CI 1.95-4.70) and surgical specialty Females were significantly more likely to use three or more therapies (48% versus; P < 0.001), as did younger patients.	Was reported as most commonly cited reason: for use of non-herbal therapies musculoskeletal pain (acupuncture, massage, chiropractor, osteopathy, homeopathy, and spiritual healing), relaxation (aromatherapy, reflexology, yoga, hypnotherapy, and shiatsu), stress (counselling therapy and meditation). Others healing (reiki), general health (dowsing), irritable bowel syndrome (kinesiology). Most commonly cited reason for use of herbal products musculoskeletal problems (Traditional Chinese medicine), bone and joint (cod liver oil), joints (glucosamine), relaxation (Bach flower), and insomnia (valerian). Other herbal products had different most commonly cited reasons for use.	CAM uses learned about these therapies from a variety of sources, including family, or friends (62 %), healthcare professionals (26 %), broadcast media (27 %) from books and the internet (5 %)	Over 60% stated that their GP w they were using **alternative trea**

2.6 Attitudinal Basis

2.6.1 Concept of attitude

There are different postulations of measurement of attitude. Fishbein & Ajzen (1976) had pointed out in their previous review of research published back in 1968 and 1970 that they found more than 500 different operations designed to measure attitudes. The attitude measurements have included standard attitudes scales (e.g. Likert, Guttmann, Thurstone, and semantic differentiation) and other indices across verbal items have included single-response measures in questionnaires of feelings, opinions, knowledge, or intentions, behaviours and psychological measures (Fishbein and Ajzen 1976).

"How does one know that attitudes exist at all? Only by necessary inference, there must be something to account for consistency of conduct" (Shwartz, 2007). A definition by Eagly and Chaiken (2007) which has been useful to other authors is that attitude is a psychological tendency that is expressed by evaluating a particular entity with some degree of favour or disfavour (Fishbein & Ajzen, 1976). The evaluative responding is agreed to be directed to some entity or thing that is its object that is we evaluate a person, a city, an ideology, and a myriad of other entities (Eagly and Chaiken, 2007). The entity, or attitude object, is said yields the stimuli that elicit the evaluative responses that psychologists identify as attitudinal.

In the views of Fishbein and Ajzen (1976) the residue of experience influences or modifies an organism's behaviour. They argued that attitudes generally reflect such residual factors; hence, attitudes are the product of learning. In other words, one's psychological predisposition (i.e., attitudes) to respond in favourable or unfavourable ways to stimuli is logically the result of experience. A predisposition to act directly or indirectly in a favour or unfavourable manner to some object directs attention to any kind of prior experience with that object.

Consistent with that, Eagly and Chaiken (2007) supported the position that the attitude object aspect of definitions of attitude was important because it distinguishes the concept of attitude from other psychological constructs such as

mood that involve evaluative reactions that are more diffuse because they are not directed toward a circumscribed entity. An attitude, they said, is inside the person, not directly observable, and manifested by covert and overt response. Some of these responses are observable through special operations or instrumentation and can thereby give evidence of the presence of attitude in time. In a further assessment Eagly and Chaiken (2007) proposed, in general agreement among contemporary attitude researchers, that, even when a person does not have conscious access to an attitude it may be automatically activated by the attitude object or cues associated with the object.

2.6.2 Rationale from the relevance of attitudinal basis

The concept of attitudes was illustrated to be significant to the understanding and predictive value of behaviour (Section 2.6.1). Varied attitudes are reported in studies which probably arise from different populations (Lim et al., 2005; Astin, 1998 Furnham and Smith, 1988; Furnham and Forey, 1994; Vincent and Furnham, 1997). Also different measures of attitude to alternative medicine have been used in the studies and attitude can be different for different groups. For example, General Health Belief Scale, the Health Consciousness and General Awareness Scale and the Health Locus of Control Scale have been used in some studies in the UK (Furnham and Smith, 1988; Furnham and Forey, 1994; Vincent and Furnham, 1997). These are attitudinal scales measurements that consist mainly of statements or experiences often not directed to alternative medicine. For example ‘do you often read about health in newspapers, magazines, books, etc’, ‘do you think the government should spend more money on cleaning up the environment’? The attitudinal scale measures are restrictive and not related to the issue or object. Therefore they may not capture what is relevant to attitude formation to alternative medicine use.

The decision was made to examine the populations’ attitudes to alternative medicine. This would increase understanding and predictive behaviour of the use of alternative medicine in the two populations to be studied. Following discussion above, it was decided to be logical by determining the reasons for use of alternative medicine and views from their perspective on the design of the

questionnaire for the two populations (Chapter 3, Section 3.3). Intent of use and perceptions of effectiveness, side-effects and potential interactions of alternative medicine were added to the contents of the questionnaire for the second population studied (Chapter 5, Section 5.1).

3. Research Methodology

The methodology described here encompasses the philosophical position of the study, the study design, the specific methods for the data collection and data analysis, and the issues relating to the sample of the population included in the study.

3.1 Positivist Position

A detailed discussion of the philosophy of research practice is beyond the scope of this thesis. However given that some of the research undertaken might be thought to fall in part under social science, wherein importance is placed on 'philosophical position' taken in a research study, it was thought advisable to identify the philosophical position that was taken. An important point within the various treatises on research is that there are several perspectives from which research could be approached. In view of that, it was thought that at the outset the perspective of the research should be established so that the area of knowledge which has been developed would be clear. As established by Creswell (2003), philosophical ideas remain largely hidden in research but as they influence research they need to be identified. He also pointed out that the beliefs held by an individual as a result of variety of factors like background, experiences or field often influence the nature or direction of the research. For such reasons the author like others has suggested that a researcher should make explicit the larger philosophical ideas they espouse (Bowling, 2002; Saks and Allisop, 2007).

The positivist philosophy is acknowledged as being broad and variable depending on the researcher and research purpose (Bowling, 2002; Saks and Allisop, 2007; Creswell, 2003; Bryman, 2008). It is therefore worth starting off by looking at the fundamental definition of the actual notion of positivism that was first coined by Auguste Comet. This is that the view taken in positivism is mechanistic in that knowledge is concerned with 'facts' and the observed world and social laws underpin the development of the human species (Bowling, 2002).

The principle of deductivism is the regular approach to research of the positivist paradigm (Bowling, 2002; Saks and Allisop, 2007; Bryman, 2008; Creswell, 2003).

According to Bryman (2008), the researcher, on the basis of what is known about a particular domain and theoretical considerations in relation to that domain, deduces a hypothesis (or hypotheses) that must then be subjected to empirical scrutiny (Bryman, 2008). Hence, the perspective of the positivism paradigm is that theory and the hypothesis deduced from it come first and drive the process of gathering data.

This study was consistent with the positivist approach. However, as expounded in the work of Bryman (2008), usually associated with quantitative research, when the deductive approach is put into operation, it often does not follow the sequence outlined in its pure form. This current study was predominantly deductive in orientation, in that 'theory' was implicit in the literature review on the topic in form of accumulated knowledge brought together from articles and books. As Bryman (2008) had observed, the literature consisted of reports around which the study would be focused and on which data collection and analysis would subsequently be geared in order to illuminate the research issues. Another similar feature of this study was the lack of specification of the hypothesis (a prediction the researcher makes about expected relationships among variables). As a general rule, specification of hypothesis will be found with experimental research (Bryman, 2008; Creswell, 2003, Smith, 2005). In addition the study aims reflected a deterministic perspective where causes probably determine effects or outcomes. This was also apposite to the positivist belief (Saks and Allisop, 2007; Creswell, 2003). However, for the present study it was not set out to establish a causal relationship.

This study had clearly established aims informed by the literature highlighted in Chapter 4 and Chapter 5 respectively. The shortage of published studies regarding the two populations of interest supported the need for the investigation of alternative medicine use among consumers in the health shops and the in-patients in a secondary healthcare within the UK. Thus, the aims of the study were to examine the pattern of use of alternative medicine by the consumers and in-patients. This was followed by obtaining attitudes informed from views and previous studies in the literature. This resulted in the further aim of examining the consumers and in-patients attitudes to alternative medicine from their own

individual perspective. The perspective of adverse outcomes as dealt within the literature was associated with side-effects and potential interaction between alternative medicine and conventional drugs. The final aim of the study was to examine the possible incidence of adverse outcomes of alternative medicine as used by the consumers and in-patients in the two population settings.

In brief, a cross-sectional survey study design was carried out which involved the use of pre-designed questions relating to the study aims in face-to-face structured interviews of a sample of alternative medicine consumers purchasing in health shops and in-patients in a secondary healthcare setting. The inclusion of self-filled questionnaires by staff in health shops in the study is discussed in detail in Chapter 4. Data analysis included statistical analysis i.e. frequency distribution, chi-squared test and with a quantitative content analysis being adopted as necessary.

The sample of the population in this study fitted with the principle of generalisability within the positivistic belief. Generalisability is trying to ensure that data obtained may be reliably extended to the population studied (Saks and Allisopp, 2007). Generalisability sought in the study was also the same as Borg and Gall (1989) had defined. The positivist approach acknowledges variations in human behaviour but requires general patterns that hold across individuals. This assumption of generalisability, as pointed out by Borg and Gall (1989), shows how the positivist philosophy also supports the quantitative type of research.

The methodology used in this study is best described as “quantitative” (Saks and Allisop, 2007; Creswell, 2003; Borg and Gall, 1989; Bryman, 2008) and thereafter inherently carries with it attributes that assign it to the positivist paradigm. As proposed in the various discourses quantifying human behaviour, the assumptions about objectivity, neutrality and generalisability place the methods used squarely within the realms of the positivist paradigm. Saks and Allisop (2007) also explained that while trial designs, in particular randomised control trials, are the most commonly associated designs within the realm of positivism, they agreed that the foci may be different and suggested that there are others like cross-sectional designs which are also based on a positivist assumptive base.

Bryman's (2008) further observation was also that while the experimental investigation may fit the model of 'hypothesis-testing' well, on the other hand it is agreed that survey-based studies are often more exploratory than this view implies. A point is that although concepts have to be measured, the nature of their interconnections is frequently not specified in advance. Consequently the position is that analysis of quantitative data is far more exploratory than is generally appreciated and offers opportunities for the generation of theories. The author further proposed that the common portrayal of quantitative research as exclusively an exercise in testing pre-formulated ideas fails to appreciate the degree to which findings frequently suggest new departures and theoretical contributions. Hence, Bryman (2008) pointed out that unlike an interpretivist stance, quantitative research is only concerned with testing of hypotheses and fails to recognise the creative work that goes into analysis of data and interpretation of findings. Another instance in this study was for example seeking the individual perspective with the use of words 'open questions' to examine the consumers' and in-patients' attitudes to alternative medicine. Bryman (2008) put forward a valid argument that the proponent of qualitative research essentially claims it is only through qualitative research that the world can be studied through the eyes of the people who are studied. His clarification to this through the Platt (1981) observation was that this contention was rather at odds with the widespread study in attitudes in social surveys based on interviews and questionnaires in quantitative research. To clarify further on the point, Creswell (2003) had pointed out that often the distinction between quantitative and qualitative research is framed in terms of using numbers or closed questions 'quantitative hypotheses (quantitative) rather than word or open-ended questions (qualitative). However, that the approaches are not as completely discrete as might be perceived. The argument was that quantitative and qualitative approaches should not be viewed as polar opposites or dichotomies; instead, they represent ends on a continuum. A study tends to be more quantitative or qualitative.

Purportedly, according to Bryman (2008), interpretivism is a term that usually denotes an alternative to the positivist orthodoxy. Not surprising then, this paradigm has been contrasted to the positivism paradigm (Saks and Allisop, 2007; Creswell, 2003). Generally, the interpretivism paradigm respects the differences

between people and the objects of natural sciences and therefore requires the social scientists to grasp the subjective meaning of social action (Bryman, 2008). Therefore, the distinction is that the interpretivist researcher is not interested in observing patterns in group behaviour, but rather the focus is on single individuals. The interpretivist researcher will therefore tend to use qualitative methodologies, for example in-depth interview, focus groups or ethnographic observation. They will be likely to involve a research site and observe behaviour of an individual without preparing predetermined questions or conducting an interview in which the individual or groups is allowed to talk openly about a topic, largely without the use of specific questions.

There are several bases for argument regarding views on research practice. Part of the debate for this study had been that the positivist and interpretivist positions or quantitative and qualitative research methodologies that fit within either are different. However that they are not completely so antithetical that they never overlap. According to Bryman (2008) this actually belies practice or reality. As discussed, the purpose of this section was not to debate on the broad philosophical perspectives in research practice. However it was thought that it would be useful to clarify that the current study was more inherent with the positivist views and that an overlap of the approach might exist with the beliefs of other research perspectives.

3.2 Cross-Sectional Survey Study design

A cross-sectional survey study design was carried out to investigate alternative medicine use in a sample of consumers in health shops in the community and in-patients in a secondary healthcare setting. This was as set out in the context of the study aims to examine the patterns of use of alternative medicine by consumers and in-patients, their attitudes to alternative medicine use and possible incidence of adverse outcomes of alternative medicine used.

Explicitly from Bryman (2008) this survey comprising of cross-sectional design entailed the collection of data on several cases at a single point in time in order to collect a body of quantitative or quantifiable data in connection with two or more

variables (usually many more than two), which were then examined to detect patterns of association. This research survey employed a quantitative research design to provide frequencies of events, to establish the proportion of population who hold certain views or had particular experiences and quantitative or numeric description of attitudes of a population by studying a sample of that population (Bowling, 2002; Smith, 2005; Saks and Allisop, 2007; Bryman, 2008; Creswell, 2003).

Hence, a limitation of a cross-sectional survey study design is that it is not possible to obtain data on actual prospective (future) actions or experiences. This is because cross-sectional design involves a survey of the population at only one point in time. However, what is crucial to the study aims is that information can be collected on retrospective (past) and current actions or experiences. In addition prospective data can still be obtained, for example on the intent of future use of alternative medicine, to examine the in-patients attitudes to alternative medicine in the study.

This cross-sectional survey study was not intended to establish causality (Bowling, 2002; Saks and Allisop, 2007; Bryman, 2008). As Bowling (2002) pointed out, cross-sectional studies can point to statistical associations but cannot alone establish causality. Fundamentally, because cause and effect are collected at same time it is difficult to establish which comes first, or, as Bowling (2002) pointed out, there could be a third factor present. For that reason Bowling (2002) ascertained that it is difficult to establish the direction of an association (cause and effect). The purpose of the current study was not to establish causality, but to determine the relationship for example between characteristics of the in-patients and use of alternative medicine. As also affirmed by Bowling (2002) and Bryman (2008), it is logical in some situations to decipher which factor comes first. For example in the current study, gender of the in-patients would be logically expected to come before use of alternative medicine. So also Bowling (2002) had emphasised that distinctions between study methods in relation to their analytical abilities should not be that rigid. In Bowling's (2002) view the increasing sophistication of statistical techniques can help to minimise this limitation.

3.3 Data Collection

Data collection was carried out with pre-designed questionnaires in interviews of consumers in health shops and in-patients in a secondary healthcare setting. In addition it was necessary to elicit other necessary information from the in-patients' medical notes.

3.3.1 Questionnaire design

The first issue to be tackled when developing a questionnaire is to ensure that the contents meet the study objectives (Smith, 2005; Saks and Allisop, 2007; Creswell, 2003). Different questionnaires were developed for the consumers and in-patients according to the stated aims in Chapter 4 and Chapter 5, due to adjustments needing to be made for extensions that came with the study aims and wordings to suit the in-patient investigation. It was also necessary that the questionnaire should be developed with the consideration of the study population in mind, sensitivity of questions, ease of administration and length of the questionnaire were issues to be considered. The questionnaires were reviewed by staff in health shops before they were used for the consumers and representatives of the in-patients as explained in the validity and reliability of the questionnaire (Section 3.3.1.2). Samples of the questionnaires have been provided (Appendix 4).

The respective questionnaire included questions on 'variables' with anticipated responses to collect demographic data, such as gender of the consumers and in-patients. Questions were provided to determine prevalence of use of alternative medicine and the disclosures of use to healthcare professionals by the consumers and in-patients. Questions on use of alternative medicine provided the opportunity to elicit responses on types of alternative medicine and time of use, indications and sources of recommendations in the use of alternative medicine. For instance the type of the alternative medicine or conventional drugs that would be used by consumers or in-patients would not be known for definite so this was done to avoid restriction to the scope of the alternative medicine use (further discussed in Section 3.3.1.1). Open-ended questions having no predetermined or anticipated

answers were used to collect data on the reasons for use and on general views to examine the consumers and in-patients attitudes to alternative medicine. In addition this type of question was expanded to include perceptions of side-effects, effectiveness, potential interactions and consideration of use of alternative medicine. Reasons for disclosures of use of alternative medicine were sought from hospital in-patients. Questions with pre-defined responses to the questions 'yes', 'no' and 'do not know' were used to determine the in-patients' perceptions of side-effects, effectiveness, potential interactions and consideration of future use of alternative medicine.

3.3.1.1 Scope of alternative medicine use

The scope of alternative medicine use in the study included any alternative medicine used by a consumer and in-patient according to the definition in Section 1.1 of Chapter 1. This was to avoid an underestimate of alternative medicine use which would have had consequences with respect to the study aims. The rationale was that the literature discussion regarding current practices showed that a broad variety of alternative medicine existed in the UK (Chapter 2, Section 2.1.3). This was also in accordance with the published studies in the literature review (Section 2.3.3 and Section 2.4.4) which are discussed further in the introduction of Chapter 5 (Section 5.1). The scope of alternative medicine use in this study applies to the Harris and Rees (2000) recommendation encompassing of both therapies and remedies. This was understandable as Harris and Rees (2000) in their systematic review of different studies had confirmed that the estimates of use of alternative medicine tended to be larger for consultations and use of products than those for the prevalence of consultations alone. For example, the Featherstone *et al*. (2003) study in the UK presented the highest (71%) prevalence of use of alternative medicine. Another example in the literature review is from the study of Thomas *et al*. (2001) in which it was reported that if only practitioner contact of the 5010 adults studied in the UK was considered and self-care using remedies bought over the counter was excluded then alternative medicine use declined by 10.6%. Exemptions that applied for the study are in the discussion below within the categories of alternative medicine in the study.

Alternative medicine in this study would be divided into two groups, namely, herbal remedies and dietary supplements, the second including the other forms of alternative medicine (Chapter 1, Section 1.1.2). The first category was used to assess potential interactions with conventional drugs used by the consumers and in-patients to examine the incidence of adverse outcomes. Although vitamins and minerals may be included in some studies as part of alternative medicine practices, this is controversial owing to the fact that vitamins and mineral supplements are actively considered within the standard conventional healthcare practice in the UK. Therefore, the decision in this study was that use of vitamin or mineral supplements by the consumers and in-patients would not be considered as use of alternative medicine when examining the patterns of use of alternative medicine. Herbal teas are less clear in this regard, because they constitute extracts from plant sources but neither are they inclusive as treatment nor used in the management of health within the conventional healthcare practices. However, due to the consideration of them as food items along with others like dandelion, soy, and raw garlic in food preparations, use would not be considered as use of alternative medicine. The second group of alternative medicine includes other forms of alternative medicine not included in the first category. This excludes aromatherapy and homeopathy in the first group of herbal remedies and dietary supplements, even though they are similar in terms of being considered as alternative remedies or products. Practices like yoga seen more as exercise or prayers and religious practices were therefore excluded in the current study.

3.3.1.2 Validity and reliability of questionnaire

The design of the questionnaire was informed by the study aims to ensure its content validity in Sections 3.3.1. Content validity has been referred to as the extent to which a measure thoroughly and appropriately assesses the characteristics or skills it was intended to measure (Saks and Allisop, 2007). Smith (2005) had also described content validity in relation to questionnaire construction as the extent to which data gathered covers all the issues relevant to the study objectives.

As recommended, the face validity check of the questionnaires was carried out by experienced researchers and representatives of the study population (Smith,

2005). The supervisory team which consisted of full time academic pharmacists, a statistician and a clinical research pharmacist in the hospital had reviewed the questionnaires. The questionnaires were also provided to the staff in the health shops and ethics committee for the in-patients as discussed (Chapter 4, Section 4.2 and Chapter 5, Section 5.2 respectively). As regards to what face validity is, Saks and Allisop (2007) had referred to it as how the measure appears on the surface and whether all the required questions are framed in the appropriate language. Smith (2005) described face validity was when without further investigation the questions would be expected to produce accurate information? It was recommended that the aim of the face validity check was to uncover fairly obvious problems such as ambiguous questions or those that may be expected to lead to inaccurate responses. Saks and Allisop (2007) had also suggested that it stems from inappropriate wordings.

From Saks and Allisop (2007) and Smith (2005) it can be said that the reliability of the questionnaires was also enhanced by the same measures taken to ensure its validity. In addition there was no risk of poor reliability from multiple interviewers (Saks and Allisop, 2007), because the study was conducted by only one researcher. Saks and Allisop (2007) and Smith (2005) had proposed similar factors that can lead to unreliability of a questionnaire relate to question construction. For example, those that are ambiguous or difficult for respondents to answer and the effect of different interviewer characteristics.

Another perspective on content validity was raised by Smith (2005) who suggested that it should also be achieved from the perspective of the population. However, this was very challenging as a result of approvals that were needed to be obtained before carrying out a study in both populations. Therefore there was no prior pilot for the study in the population. It was conducted whenever possible as soon as approvals had been obtained to access the study population. Ethics and other approvals obtained are discussed in the respective Chapters.

3.3.2 Face-to-face (one-to-one) structured interview of consumers and in-patients in the settings

'Face-to-face interview' carried out in this study involved consumers that were purchasing alternative medicine in health shops in the community and in-patients in the secondary healthcare setting within the North East of England. Clearly, as proposed in the literature, this ensured the validity of the data to the population studied (Trochim, 2001). Face-to-face interview was used despite the fact that it can be more costly, time consuming and may involve difficulties in accessing the populations directly. This is in contrast to other options of phone interview or postal questionnaire that were used in some of the previous studies mentioned in the literature review in Chapter 2. An opinion of these other methods was that there would be no guarantee of who exactly filled the questionnaire (Saks and Allisop, 2007; Bryman, 2008; Trochim, 2001).

Neither was it feasible to access directly via telephone consumers in health shops in the community or in-patients in a secondary healthcare setting in order to conduct the study. This would have been a more realistic option supposing that the populations were in the sites where they can be accessed directly by telephone. For example this would have been more appropriate if the focus of the study was on the general population. The option of using telephone interview would have made sense in that the population could have been accessed in their homes (Ernst and White, 2000) in the UK.

Another view is that face-to-face interviews are more likely to produce complete questions and better response rates (Trochim, 2001; Bowling, 2002; Saks and Allisop, 2007). There was evidence of this in the literature (Chapter 2, Sections 2.3.3 and 2.4.5). For example, in the study conducted by Chandola *et al*. (1999) a 99% response rate in the interview of patients attending a hospital clinic in London was reported. On the other hand in the study conducted by Featherstone *et al*. (2003) a response rate of 77% (1174 adult patients) to their postal prepaid questionnaire of patients attending six practices in Scotland was reported. Out of these, 348 responses were incomplete. In another study (Lewith *et al*., 2001) a lower response of 162 (60%) from the 270 questionnaires distributed to a sample

of cancer patients, that consisted of out-patients, hospice patients and in-patients, was reported. In this Lewith *et al*. (2001) study a lower response (63%) was reported compared to the Featherstone *et al*. (2003) study even though the out-patients had questionnaires filled and returned during their out-patients attendance in hospital. With this contrast in response between the two latter studies it was possible to think that hospital patients are less likely to respond to self-filled questionnaires. On the other hand it is reasonable to have less confidence in the response rate with the Featherstone *et al*. (2003) study due to the previous point that was made. In regards to that, with postal questionnaire there is no absolute guarantee of who most have filled the questionnaire.

A logical explanation for better and complete response being possible with face-to-face interview is that it will provide the researcher with the opportunity to clarify and prompt for responses which will ensure that data are comprehensive and comprehensible (as will be elaborated upon in the forthcoming discussion.) This obviously will not be possible with postal questionnaires and would be unlikely even if questionnaires were self-filled by consumers and in-patients in the setting. It may be possible with telephone interviews, that is to say it was possible by some means to access directly consumers or in-patients via this means. However, this is still unlikely to be the same as face-to-face interviews. For example, because of cost considerations the researcher may not be able to utilise more time on the phone. More so it was unlikely that people would want to spend the length of time that may be required on the phone.

A lack of opportunity for the researcher to clarify and prompt response may be responsible for the missing and incomplete responses from postal questionnaires in the Featherstone *et al*. (2003) study. Borg and Gall (1989) had equally suggested that even with closed types of questions that are often easier to be self-filled, as suggested by Bryman (2008), it is possible in interview to prompt the participant to choose an answer that was mostly likely to be close to what the interviewees felt. Therefore Borg and Gall (1989) opined that face-to-face interviews were more usable answers in interviews than with a self-filled questionnaire.

An interest in the potential benefits of alternative medicine is a reason for purchase by consumers in the health shops. However this could not be said to be of priority to the in-patients in the secondary healthcare setting. Thus, the preference for using interviews rather than self-filled questionnaires by the in-patients in this study was drawn from the limitation of postal questionnaires by Saks and Allisop (2007). They advised that postal questionnaires cannot motivate people to answer 'boring' questions and may not produce high quality entries. Bryman (2008) had also put forward a valid point which was that it was easier for a respondent who becomes tired of answering questions in a long questionnaire to consign it to a waste paper bin than for an interviewee terminate an interview.

There were some issues in relation to this study's aims that could be considered to be quite sensitive issues. These include obtaining information on medication use and experiences. This was problematic because then the argument may be that self-filled questionnaire may then offer more privacy. It was therefore vital that the procedure in this study was transparent and that consumers and in-patients were provided with full information regarding the study. This was with the option of voluntary participation in the investigations (see later in the Methods sections (Chapter 4 and Chapter 5)). This ensured that consumers and in-patients were willing to participate in the study and that there was no breach of ethical issues.

The sensitivity of the issues regarding the study aims had also completely ruled out the option of phone interview in this study. As Saks and Allisop (2007) had suggested, telephone interviews tend not to be useful for exploring sensitive topics. Although, telephone interviewing is quite common in commercial fields like market research (Bryman, 2008), the opinion was given that it is still far more customary to read reports on studies based on face-to-face interview in academic social research. This was consistent with the literature review of the studies that were reported in this thesis in Chapter 2. Only the one study mentioned above had used a telephone interview and this was a study carried out by BBC that was conducted among the general population (Ernst and White, 2000).

The value of using structured interviews in this current study was that questions had been pre-determined with respect to the study aims in the questionnaire

design to be used in the interview to ensure that the data obtained represented the scope of the study aims from the population that was studied. As such, the same questions were adhered to in the interviewing of the individual consumer and in-patient according to the respective questionnaire used in the investigation. This procedure is in line with the format of structured interview (Bryman, 2008; Bowling, 2002; Smith, 2005).

In spite of the rigidness of structured interview, the researcher still has the opportunity to clarify and prompt responses. The purpose however is not to introduce new questions but to ensure data collected are comprehensive and comprehensible, as Smith (2005) proposed. It is possible to do this because, as Smith (2005) and Bryman (2008) agreed, the avoidance of leading probes will ensure the validity of the data with respect to the scope of the study aims.

The interviews allowed for clarification of responses and generally avoided leading questions and interviewer bias, enabling the interviewer to remain neutral (Bowling, 2002; Smith, 2005; Bryman, 2008). One example is asking neutrally what predetermined response might be closest to the way the participant felt for closed questions as recommended by Bryman (2008). This was particularly useful during the interview of the in-patients where there were more questions with predefined responses, for example in instances when in-patients were in doubt of the specific time of use of alternative medicine. Rather than having no response, in-patients were asked to choose what was closest to what they felt. As said before, Borg and Gall (1989) also had agreed that it is possible to prompt the participant to choose an answer that was mostly likely to what they felt. This arguably would allow getting more usable answers than would occur with a self-filled questionnaire.

Bryman (2008) had explicitly denoted two kinds of situations where clarifications of responses are equally useful. This is when participants ask for further information or it is clear from what they say that they were struggling to understand the question or provide an adequate answer. This was particularly encountered with Question 9 (during the interview of in-patients) regarding the potential interactions between herbal remedies and conventional drugs. It had to be clarified further that

a potential interaction involved both affecting each other in a negative way with the possibility of producing side-effects. This was different from the notion of some of the in-patients that the question meant that both were to be used together in a complementary form. Another scenario is enhancing the response especially for the questions where no predetermined response was provided i.e. 'open' type of questions. This was again found to be very useful to prompt in-patients. The in-patients in the secondary healthcare setting showed more dedication to the interview probably because they were confined. In contrast the consumers in health shops in the study were more in a hurry to move on.

Examples of useful prompts adapted when necessary in the interview to avoid leading questions or interviewer bias and enable the interviewer to remain neutral included: *Can you tell me more about that? In what way? Why do you say that? Can I check, have I got this down correctly? Could you say a little more about that? Or Are there any other reasons why you think that? Anything else? What do you mean by? Or simply 'mmmm' or yes, a nod of the head used sensitively...?*. (Bowling, 2002; Smith, 2005; Bryman, 2008)

A further rationale for using face-to-face (one-to-one) interview in this study was that it was considered that it would be more practical compared to the option of asking consumers and in-patients to self-fill questionnaire. It was considered that it was better to approach consumers while they are purchasing alternative medicine and quickly asking questions in the face-to-face interview rather than having to organise and invite for questionnaires to be self-administered or returned through the post by the consumers in health shops. Other challenges anticipated to be a barrier were associated with the ability of the consumers and in-patients to read and write. The in-patients in particular had difficulties due to medical conditions including for example the possibility of arthritis that may prevent their adequate use of hands, the tendency that treatment like intravenous fluids will prevent the use of hands or in-patients will be too vulnerable, tired or frail to personally fill in questionnaires.

It needed to be acknowledged, like Saks and Allisop (2007) argued, that succinct response should not be equated with lack of richness of the data, especially in

cases where illness or disability constrains the informant's speech. They had further agreed with the opinion of Booth and Booth (1996) that it was possible for people to communicate a story in one word answers. They added that single words can still be informative and their opinion was that structure in interview may be more motivational and less tiring for this type of population.

It was also a possible option for staff on wards to have distributed the questionnaires to the patients on behalf of the researcher (Lewith *et al*., 2001). However, as discussed earlier this was very unlikely to have improved the response. Other issues of concern were also regarding the fact that there would be no guarantee that the data would come from the in-patients as would be the case when using face-to-face interview. A practical disadvantage of using representatives in either population was also that it might have inconvenienced the staff in the health shop or the healthcare professional in secondary setting.

A suggestion from previous studies in the UK was that participants have been more open to disclose their use of alternative medicine to researchers than to healthcare professionals (Table 2.2 and Table 2.4, Chapter 2). It was also anticipated that the use of a representative in the population could affect disclosure of side-effects by patients. Going by evidence of previous studies, patients have been reported to disclose experience of side-effects of conventional drugs to researchers that had not been reported to healthcare professionals (Jarernsiripornkul *et al*., 2002; Blenkinsopp *et al*., 2007). The conclusion from these previous studies was that patients would be willing to disclose side-effects of alternative medicine to the researcher.

The option of multiple interviewers had to be discussed in relation to this study. This may be employed in other studies for different reasons. The reality in this study was that multiple interviewers might have improved the chance of a higher number of consumers and in-patients being used and then possibly larger number of data being obtained. Nevertheless, the accuracy of the data from the single researcher was considered to be far more essential. This was especially the case given the concerns of the validity and poor reliability of data (Saks and Allisop, 2007) associated with multiple interviewers. However, in the context of a PhD

programme it was presumed that the only interviewer had to be the student. Other drawbacks thought about in advance were in terms of the resources required for employing and training of multiple interviewers (Saks and Allisop, 2007).

3.3.3 Review of in-patients medical case notes

A review of the in-patients medical case notes was also carried out using the questionnaire designed (Section 3.3.1) to collect further information that was relevant to the study aims. This was to obtain any record of use of alternative medicine documented in the medical notes during their current admission in hospital. This additional information was important to determine the prevalence of use of alternative medicine and the disclosure of use to examine the patterns of use of alternative medicine. Other information collected could not be obtained directly from the in-patients or was collected because they were likely to be more accurate or complete in the medical notes. This included information on the in-patients discharge from hospital the length of hospital stay for their current admission, the number of previous admissions and the in-patients medical conditions. It was essential to describe the characteristics of the in-patients in the study, but also in the study aims to examine the patterns of use of alternative medicine and useful in relation to adverse outcomes. Also the list of conventional drugs used by the in-patients prior to and during admission from the in-patients medical notes was collected. This was needed to assess potential interactions with herbal remedies or dietary supplements used in order to examine the incidence of possible adverse outcomes. Furthermore all known drug reactions that were documented were collected to ensure that all reports of experience of side-effects to alternative medicine use was collected.

3.4 Data analysis

3.4.1 Statistical analysis

The statistical analysis was aided with the current Microsoft Excel package and Statistical Package for Social Sciences (SPSS) (version 16.0 at the time of analysis).

3.4.1.1 Frequency distribution

The frequency distribution was calculated for the data obtained from the questions that were used to examine the pattern of use of alternative medicine by consumers in health shops and in-patients in secondary healthcare setting within England (Chapter 4 and Chapter 5). The frequency distribution is the number of people belonging to each of the categories for the variable i.e. question in concern (Bryman, 2008). The frequency distribution was also determined as in the content analysis (Section 3.4.2) of the open questions used to examine the consumers and in-patients attitudes to alternative medicine and following the assessment of the potential interactions and side-effect reactions of alternative medicine used in the last aspect of the study aims (Section 3.4.3).

3.4.1.2 Chi-square or Fisher's exact test of association

The chi-square test, carried out in this study (Chapter 5), is a method of testing the significance of the relationship between two categorical variables that are cross tabulated in a contingency table. This determines if relationship exists and what confidence can be had in a relationship between the two variables in the population (Polit, 1989; Munro, 1997; Argyrous, 2005; Bryman, 2008). It is agreed to be the most appropriate test to determine the relationship when both variables are described through frequencies, rather than means (Polit, 1989; Munro, 1997; Argyrous, 2005; Bryman, 2008). It is essentially the recommended method of choice especially when the dependent variable exists as a nominal variable as was the case in this study. The independent variable is the hypothesized cause of, or influence on, the dependent variable (Polit, 1989; Argyous, 2005). There could be a logical inference of direct relationship between two variables. However in this cross sectional survey study, relationship or association determined would not infer causality (Section 3.2).

The chi-square test in this study was performed with the most current version at that time, 16.0, of the Statistical Package for Social Sciences (SPSS). The percentages and the frequencies from the cross- tabulation are presented in the Results section in Chapter 5. The percentages establish differences better than

reporting the frequency only (Munro, 1997). For example the data obtained from the study showed that a higher number of female in-patients used alternative medicine than male in-patients. However, because originally the number of female in the study had been greater than male in the study, it was more appropriate to compare the percentage of all females using alternative medicine with the percentage of all males using alternative medicine.

The chi-square value which can be calculated manually from the formula below is the same as the computed Pearson value (Polit, 1989; Munro, 1997; Argyrous, 2005; Bryman, 2008).

$$\textit{Chi-Square Formula} = \sum \frac{(O - E)^2}{E}$$

E, the expected frequency for a cell, is subtracted from O which is the observed frequency for a cell, the result is squared and then this value is divided by the cell's expected frequency E. When these calculations are performed for each cell, ∑ is all the values are added to yield the chi-square. (The observed frequency is the frequency observed within the actual data). The expected frequency represents the number of cases that would be found in each cell if the null hypothesis were true i.e., if the two variables were totally unrelated (Polit, 1989). It is calculated from $E = (R_f C_f/N)$ where R_f is the observed frequency for the entire row of the cell is in, C_f is the observed frequency for the entire column the cell is in and N is the total sample size.

As Argyrous (2005) suggested the value of the chi-square test (Pearson value) does not indicate a great deal, apart from the fact that if it is not equal to zero this indicates that there is some relationship between these variables in the sample data. Bryman (2008) stated that the chi-square value means nothing on its own. Both, like other authors, agreed that the chi-square would only be meaningfully interpreted in relation to its associated level of statistical significance which is what has been presented in the results in Chapter 5. A table of level of statistical significance is often what is used in the literature for manual illustration, but the use of computer software that has been used in the study generates it along with the chi-square results.

The associated level of statistical significance, p-value of ≤ 0.05, used in this study is widely acceptable (Polit, 1989; Munro, 1997; Bryman, 2008). It implies on there being fewer than five chances in a hundred that you could have a sample that shows a relationship between two variables when there is not one in the population i.e. less than five chance in a hundred of rejecting the null hypothesis (H_o) which stipulates that two variables are not related in the population from which the sample was selected and accepting the alternative hypothesis (H_a) that there is a relationship in the population when there is no such relationship in the population. Basically the smaller the p-value the more the data support the alternative hypothesis. Bryman (2008) took the p-value ≤ 0.05 as the maximum level of statistical significance acceptable and this has become the convention among most social researchers. In this study, the use of alternative medicine can be viewed as a social context in terms of human behaviour, attitudes and experiences. Also, in the related study of the use of alternative medicine that was conducted among the in-patients, (Shakeel *et al*., 2008) a statistically significance of p-value ≤ 0.05 had been adopted.

The point according to Polits' was that inferential statistics like the chi-square test used in this study are designed to disconfirm, and consequently there is never any justification for interpreting an accepted null hypothesis as evidence of a lack of relationship among variables. As Polit (1989) explained, in statistics "significant" means that the obtained results are probably not attributable to chance (attributable to random fluctuations and sampling error), at a specified level of probability. To elaborate further statistical non-significance implies that the finding could have been obtained simple by chance.

Quite often assumptions about sample size influence the validity or, as others put it, whether the chi-square results are misinterpreted (Polit, 1989; Munro, 1997; Argyrous, 2005; Bryman, 2008). The reason is that in the chi-square test it is recommended that the expected frequency of each cell be greater than 0. The recommendation was that the expected frequency of each cell be at least 5, especially for a 2 x 2 table. A distinction from larger tables (Appendix 4) is with the degree of freedom (df) which depends on the number of categories of the variable. For a 2 X 2 the df is always 1, regardless of the sample size. The df has been

defined as the extent to which values are free to vary. The number of cells that are free to vary depends on the number of cells found in a table df = (row - 1) (column – 1), for a 2 X 2 table, it becomes (2 – 1) (2 – 1) = 1. Therefore only one cell is free to vary; the others are dependent on that value, hence only one cell value needs to be known.

Hence, Fisher's exact test is used instead when the minimum expected value (or frequency) is less than 5 in a 2 x 2 table, for example for the ethnic background of the in-patients and use of alternative medicine (Section 6.2.1.2). It is recommended as more appropriate that the Pearson's chi-square test is used in such a situation (Polit, 1989; Munro, 1997; Argyrous, 2005). This is generated by the same procedure as the chi-square test but instead the option for Fishers exact test is selected in the statistical package used.

The continuity correction, often called Yates' correction for continuity, is also displayed with the chi-square result (Appendix 5). It is like Fisher's exact, but is another alternative as indicated by Munro (1997) and Polit (1989). It was therefore no surprise that it appeared to be consistent with the Fisher's exact test in the findings of this study. However it is not presented along with the final report of the finding of this study (Chapter 5), because it had been deemed to be controversial (Munro 1997; Polit, 1989) even although it is widely used for situations in which the expected frequency for any cell in a 2 x 2 table is less than 10. The reason given was that it reduces the power of the chi-square test to detect significant differences and may alter the researcher's decision from rejection to acceptance of the null.

On the other hand when there are a large number of cells, chi-square would yield a valid result if no more than 20% of the cells had expected frequencies under 5, so long as all cells had expected frequency greater than 0 (Polit, 1989; Munro, 1997; Argyrous, 2005). (This is like the chi square results of the level of education of in-patients and use of alternative medicine in this study.) The suggestion was that the researcher should reduce the number of cells in the analysis by grouping the subjects into a smaller number of categories (Munro, 1997). Similarly, Argyrous (2005) was of the view that the only possible solution is to collapse

categories together for either or both variables so as to increase expected frequencies. In the case of this study, the use of alternative medicine had only two categories and could not be collapsed further. It was therefore sensible to do the collapsing for the level of education, as will be seen in the report of the findings in Chapter 5 it had also affected the age groups in years of the in-patients. The initial five categories were reduced into three categories as it happened that reducing into four categories during the analysis did not have much effect. Because of this the age group of in-patients eventually became categorised into three groups that then became consistent with the one related study that was identified at the time of data collection in the UK conducted among the in-patient (Shakeel *et al*., 2008). The finding of the initial categories in five and after collapsing of categories into three are both presented in the Results and Discussions, because the speculation is that information is lost when categories are collapsed together (Argyrous, 2005).

3.4.1.3 Cramer's V

The result of a Cramer's V test is a measure of the strength of association or relationship between two variables and is particularly useful when there is a statistically significant association (Polit, 1989; Bryman, 2005). Its result in computed statistics is suggested to vary between 0 and 1, as demonstrated in the resulting findings of this study; the statistics is said takes only a positive value. The closer its value to unity indicates a stronger relationship between the variables. The advantage compared to another test below is that Cramer's V has a wider application to all types of variable.

Phi is another similar statistical measure that is computed along with Cramer's V. It is not presented in the main findings of the study, since Cramer's V can be used for all variable types and unlike Phi it has no restriction on its use for only the 2 X 2. This explains how the same values were obtained in the examples (Appendix 4. p.256). It is similar to Cramer's V (Polit, 1989; Bryman, 2008). However, as a dichotomous variable is also a nominal variable, the categories of responses are only one of either. The Phi statistics results in a computed statistics varies between 0 and 1 or -1, also differently from Cramer's V. However, it is similar in that the higher the value the stronger the strength of association.

3.4.2 Content analysis

Content analysis was used to analyse the responses obtained to the open questions from the interviews to examine the consumers' and in-patients' attitudes to alternative medicine and reasons for disclosure of use of alternative medicine to healthcare professionals by in-patients. In the view of Weber (1985) "*there is no simple right way to do content analysis, instead investigators must judge what methods are most appropriate for their substantive problems*".

An adapted definition is the Berelson (1952) definition of content analysis. He defined quantitative content analysis as "a research technique for the systematic, objective, and quantitative description of the manifest content of communication". Manifest content has been described as analysis of what the texts says deals with the content aspect and describes the visible, obvious components (Krippendorff, 1980). Hence, in agreement with Krippendorff's (1980) standpoint this can be restrictive, in that the complexity of communicating human behaviour and experiences will involve more interpretation. Nevertheless, content analysis in this study is different from the subjective interpretation involved with latent content used in qualitative content analysis. (Qualitative content analysis involves an interpretation of the underlying meaning of the text, referred to as the latent content (Granheim and Lundman, 2003)).

The process of content analysis carried out in this study involved identifying categories from the open questions in the interviews. The definition applied from Krippendroff (1980) is that a category in this study is a group of content that shares a commonality. Likewise as Weber (1985) suggested, in this study a central idea in content analysis is that the many words of the text are classified into much fewer content categories and that a category may consist of one, several, or many words. This was what was adopted for this study i.e. words, phrases, or units of text classified in the same category are presumed to have similar meanings (Weber, 1985). Therefore, the same inference regarding categories in this study may be applied to Patton's (1987) description of the categories as being internally homogeneous and externally heterogeneous (Graneheim and Lundman, 2003).

The categories identified can include a number of sub-categories or sub-sub-categories at varying levels of abstraction (Graneheim and Lundman, 2003). Therefore, sub-categories can be sorted and abstracted into a category or a category can be divided into sub-categories. This was particularly the case of the findings from the investigation of the in-patients in this study. This was as expected as a result of the significantly larger number of in-patients and responses obtained in the study leading to more varied responses, in contrast to the investigation of the consumers.

Krippendroff (1980) suggested that the categories identified were exhaustive. This means that no data related to the purpose was excluded due to lack of a suitable category. However, this study was in agreement with Graneheim and Lundman's (2003) objection of the opinion that the categories are mutually exclusive. The argument was that it is not impossible that data will fall between two categories or not fit into more than one category owing to the intertwined nature of human experience.

The categories were allowed to emerge out of the data. This is a different approach to the use of a set list of predetermined categories as denoted by Bryman (2008) or others who recommend this approach in quantitative content analysis. The point is that in contrast this will not give a chance to all the views that arise from this study to be seen. This has been argued to be an attribute from the Ethnographic content analysis sometimes referred to as qualitative content analysis (Bryman, 2008). However, in contrast in this study the features of quantitative content analysis were used.

This made the Bereslon (1952) definition adapted in this study more suitable than other definitions because equally it is not restrictive to predefined set of categories. For example Bryman (2004, p.181) defined content analysis as an approach to the analysis of documents and texts (which may be printed or visual), that seeks to quantify content in terms of predetermined categories and in a systematic and replicable manner. Similarly, Pope *et al*. (2007) stated that in order to undertake content analysis the categories of interest have to be defined sufficiently precisely

in advance for multiple assessors to be able to code the same data in the same way.

Also importantly quantification was carried out in terms of the frequency or number of individuals belonging to each category. This shows the level of importance of a category in the sample studied. Also, in the process of this study in the data collection previously has been adopted the general sense of systematic and objective application of neutral rules across the data collection and analysis (Breselon, 1952; Bryman, 2008). The quality of being systematic means that the same process is applied in a consistent manner so that bias would be suppressed. Objectivity resides in the transparency in the procedures for assigning the data to categories, so that the researcher's personal biases intrude as little as possible in the process.

Content analysis carried out in this study is different from the form of content analysis in qualitative research. Analysis that principally involves the interpretation of the underlying meaning of the text, referred in qualitative content analysis to as the latent content (Graneheim and Lundman, 2003). Also that qualitative research focus is to a great extent, on the subject and context, with an emphasis on differences between and similarities within codes and categories. Therefore, as proposed, the build up to the data analysis in qualitative research before then provides different research objectives, data collection process and type of data. According to Pope *et al*. (2007) quantitative content analysis measures frequencies and this distinguishes this method from 'thematic analysis' like qualitative forms of content analysis which are used to analyse and group concepts and "themes", but do not attempt to count them.

3.4.3 Assessment of potential interactions and reports of side-effect reactions from alternative medicine used

The examination of the possible incidence of adverse outcomes in this study involved assessment of potential interactions between herbal remedies or dietary supplements and conventional drugs that were reported as having been used by consumers and in-patients. In line with the literature this will involve identifying any

theoretical or clinical evidence in the literature adapted from related studies (Peng *et al*., 2004; Goldstein *et al*., 2007). Similarly, adapted in this study was that the possibility of potential interactions was in respect to any documented clinical evidence from the literature (Peng *et al*., 2004; Goldstein *et al*., 2007).

A further aim was to examine the incidence of adverse outcomes in terms of side-effects experienced with alternative medicine reported to having been used by the in-patients. Although this was not an established part of the aim in the investigation of consumers at the time, documentation was made of consumers who had reported this. This was collected with respect to time of use of alternative medicine; adopted from Jarernsiripornkul *et al*. (2003). The possibility of a temporal relation of use of alternative medicine and adverse reactions is an essential attribute of possible adverse outcomes being caused by the alternative medicine used. Furthermore, the possibility of experience of side-effects to alternative medicine reported by the in-patients was assessed in light of documented clinical evidence from the literature (Jarernsiripornkul *et al*., 2003).

3.5 Sampling and Sample Size

3.5.1 Target population

The target population of interest of the investigations should be the starting point for a sampling scheme according to Saks & Allisop (2007, p.157). The population of interest in this study with respect to the study aims involved consumers in health shops in the community and in-patients in a secondary healthcare setting within England. The Tyne and Wear region is a county within the North East of England (Figure 1.1, Chapter 1). The study also included a sample of staff in health shops with respect to the scope of the study to determine their opinions with respect to the study aims (Chapter 4, Section 4.2.3.2).

3.5.2 Convenience sampling

A convenience sample of consumers purchasing alternative medicine (and staff) in health shops in the community and in-patients in a secondary healthcare setting were included in the study.

Convenience sampling, a non-probability method of sampling, is when a sample has not been selected using a random selection method (Bryman, 2008). This implies that some units in the population are more likely to be selected than others (Bryman, 2008). However, in accordance with Trochim (2001), the convenience sampling of the population in this study was likely to get opinions of the target population even though it was likely to overweigh sub-groups in the population that was more readily accessible. This is in contrast to convenience sampling that is accidentally haphazardly not part of the population that you are interested in generalising. Therefore according to Trochim (2001) this does not mean that all cases of non-probability samples are not representative of the population. The case was that with non-probability samples, the population may or may not be represented well and it would be difficult to know how well this had been performed (Trochim, 2001). Therefore, not being able to generalise of the study findings to a larger population would be a limitation.

As Trochim (2001) observed, in some circumstance it would not be feasible, practical, or theoretically sensible to use random sampling (Saks and Allisop, 2007; Bryman (2008). In the case of this study the issues included access to the population and setting, ethical issues, willingness of consumers and in-patient in healthcare settings to participate were matters that needed to be considered (Chapter 4, Section 4.2 and Chapter 5, Section 5.2). More so, random sampling requires all members included in the sample to be listed and assigning random numbers to select them. However, both consumers and in-patients populations were not a static population and it would not have been possible to acquire a list that could be used to work out the random sampling.

3.5.3 Sample size

It is established that the greater the sample size the closer the sample would be to the actual population itself (Trochim, 2001; Bryman, 2008). In the view of Saks and Allisop (2007), the larger the sample size of the sample, the more precise the estimates derived from that sample are likely to be. However, as pointed out, in most projects it is not possible to involve all the people it would be desirable to be involved (Bowling, 2002; Smith, 2005; Bryman, 2008; Saks and Allisop, 2007; Trochim, 2001).

The goal was that within the time frame determined for data collection enough consumers and in-patients could be interviewed to enable the study aims to be met and a reasonable representation of the population studied to be included. There was a better chance for achieving the aims with the consumers since the study included consumers that were directly purchasing alternative medicine in health shops. On the other hand the sample size of in-patients included in the study reported in the results of the investigation in Chapter 5 was based on the size estimated below (Section 3.5.4).

The use of multiple interviewers may have enabled more health shops and hospitals to be covered which would have increased the representation of the sample to the population (Section 3.3.2). However, as previously discussed mainly for obvious reasons that this was a PhD programme, the interviews among the consumers and in-patients in this study were conducted by only the researcher (Chapters 4, Section 4.2 and Chapters 5, Section 5.2). It was mandatory that the student is expected to be involved in the entire process of the research. As with the rest of the study a time structure was drawn that had also influenced the time for the data collection. As Bryman (2008) observed, it is unlikely time and resources to include all members of the population, it is unlikely to be able to send postal questionnaires to all and it is even more unlikely to be able to interview the entire member of the population.

3.5.4 Estimated sample size of in-patients approved by the ethical committee

The sample size of in-patients included in the study (Chapter 5, Section 5.2.3) was based on size estimated below. This was approved by the University and national ethical committees. In respect to the earlier points made in Section 3.5.3 this was to achieve the study aims and to give better precision between the sample and the population.

The estimated sample size was between 86 and 316 on a basis of the 95% confidence interval to have a 6% to 71% prevalence of use of alternative medicine in the UK that was determined from the literature. It appeared that it is possible that different formulas may be recommended for the estimate of sample size. As a result three formulae obtained from the literature were used for the estimate of sample size in order to see whether it made any difference. Almost the same sample size estimate for the study was derived from these three formulae (Eng, 2003; Mathers *et al*., 2000; Gang XU, 1999). Hence, this could be said to have confirmed that the sample size was accurately estimated. The prevalence of use alternative medicine was the primary outcome for the estimate of sample size below, because it was essentially the basis of the study aims and for the study to be relevant to previous studies in the literature. A theoretical prevalence of alternative medicine use was used in the absence of an equivalent study from the literature or a pilot. These were the least available prevalence rates of use of alternative medicine 6% from a general population study in the UK (Ernst and White, 2000) and 71% was the highest prevalence rate from a patient focused study England (Featherstone *et al*., 2003) derived from the studies in the UK in the previous literature review (Chapter 2, Section 2.3-2.4).

Formula 1: $N = \frac{4(Zcrit)^2 p (1-p),}{D^2}$ (Eng, 2003)

For p= 6% $N = \frac{4(1.96)^2 0.06 (1-0.06)}{0.1^2} = 86.67$

For p=71% $N = \frac{4(1.96)^2 0.71 (1-0.71)}{0.1^2} = 316.04$

Zcrit = statistics for the desired level of confidence (level of significance) = 1.96 (Eng, 2003). p = Estimated the prevalence rates of alternative medicine of 6% to 71% in previous studies from the literature see above. D is 5% more or less of the total width of the expected level of significance of a 5% (0.05 level of significance is same as decided for the study in the chi-square test (Section 3.4.1.3)), more or less = 0 to 10% = 0.1

Formula 2: $N = \frac{p\,(100-p)}{(SE)^2}$, (Mathers *et al*., 2000)

For p= 6% $N = \frac{6\,(100-6)}{(2.55)^2} = 86.74$

For p=71% $N = \frac{71\,(100-71)}{(2.55)^2} = 316.28$

N= Required Sample size. p = Estimated the prevalence rates of alternative medicine from the literature see above. SE = Standard Error SE for a 95% level of significance is 5/1.96= 2.55 (Mathers *et al*., 2000).

Formula 3: $n = \frac{Z^2\,(p\,(1-p)}{d^2}$ (Gang XU,1999)

For p= 6% $n = \frac{1.96^2\,(0.06\,(1-0.06)}{0.05^2} = 86.67$

For p=71% $n = \frac{1.962\,(0.06\,(1-0.06)}{0.05^2} = 316.04$

n = same as above in 1 and 2, z = same as level of confidence above in formula 1 and 2, p = same as 1 and 2 above, d = is the desired level of significance is 5% =0.05 for this proposed study see D in 2 above.

4. An Investigation of 'Alternative Medicine' Use by Consumers in Health Shops in the Community Setting within the North East of England

4.1 Introduction

The access to alternative medicine in the UK is mainly outside the conventional healthcare setting (Chapter 2, Section 2.1.2-2.1.5). Health shops in the community setting in particular are retail outlets of alternative medicine used by the public. Thus, information relating to consumers in these health shops would be expected to be vital to the understanding of use of alternative medicine and possible outcomes. Finnigan (1991) had also proposed that a way to improve the understanding of the rise in popularity was to carry out studies on those people using such therapies and to ascertain if they were distinguishable either by characteristics, views, opinions or whether in fact there was some other factor intrinsic to the practice of alternative medicine attracting them to it.

There appeared to be no published studies in the literature regarding alternative medicine use by consumers in health shops in the community setting in the UK. A review of studies that had determined the use of alternative medicine in the UK among the general population and patients attending the healthcare setting was reported in Chapter 2 (Section 2.3 and Section 2.4). While the evidence could be informative to these specific populations, it was not conclusive. Nor could the evidence be generalised and applied to other population settings. Considering health shops are retail sites of alternative medicine products, it would be beneficial to knowledge to establish the demography of the users of alternative medicine from this point of use. There would be no better way than an investigation of consumers of alternative medicine in health shops to yield information on types of alternative medicine used in this population. It was also conceivable that determining the purpose of use by the consumers could bring more insight into how alternative medicine is used. Conflicting evidence highlighted in the Introduction of the investigation of in-patients (Chapter 5) reinforced the need to look into the sources of advice to consumers to purchase alternative medicine in the health shops.

The rationale for the attitudes to alternative medicine was covered in detail in the literature review. There was a need to further the understanding of the behaviour of use of alternative medicine by consumers in health shops (Chapter 2, Section 2.6.3). The underpinning of attitude with respect to the reasons for use and views was discussed previously as being essential to be obtained from the perspective of the consumers.

An important consideration for the current investigation was the increased risk in particular of herbal remedies and dietary supplements due to potential interactions with conventional drugs, as discussed in Chapter 2 (Section 2.2.1). Studies have shown users of alternative medicine do not often disclose use to healthcare professionals (Table 2.2 and Table 2.4, Chapter 2). Therefore, the idea was that an investigation such as this would be insightful to healthcare professionals in practice. This would be beneficial in providing information on types of herbal remedies or dietary supplements used. Looked at with concurrent use of conventional drugs this would allow assessment of the potential interactions by the consumers in the health shops.

Another aspect of the present investigation in the initial plan of the research programme (set out in the first chapter in Section 1.2) was related to the present regulation and supply of alternative medicine products elaborated upon in the literature review in Section 2.1.5. Thus, the purpose of the current investigation was to identify the prevalent herbal remedies and dietary supplements used by consumers in the setting. Along the line it had been hoped to then carry out analytical investigations of their constituents and also to carry out a cross cultural comparison. However, the latter aspect had to be excluded from the plan of the research due to reasons outside the control of the researcher.

4.1.1 Aims and objectives

The principal aim was to investigate alternative medicine use by consumers in health shops in the community setting within the North East of England in order to examine the patterns of use of alternative medicine with the objectives of determining the demographic distribution (gender, age and ethnic background) of these consumers; the prevalent types of alternative medicine used by them (i.e.,

the herbal remedies, dietary supplements and other forms of alternative medicine); the indications for using alternative medicine by consumers; the sources of recommendations of alternative medicine use to consumers and the disclosure of use of alternative medicine to healthcare professionals. A second, related aim was to examine consumers' attitudes to alternative medicine use by finding out the reasons, from their perspective, why they use alternative medicine and their general views about alternative medicine. The last aspect of the study aims was to examine the incidence of possible adverse outcomes from alternative medicine used by assessing the potential interactions between herbal remedies or dietary supplements and conventional drugs used by the consumers.

4.2 Methods

The methods described in this section include the approvals that were obtained for the investigation, participants, informed consent and data collection and the characteristics of the consumers in the investigation. The general methodology of the study was described in Chapter 3.

4.2.1 Approvals

This investigation was approved by the University of Sunderland where the research degree was carried out.

Approvals were obtained from each of the health shops prior to data collection inquiring either by phone call to the health shops or directly walking into the health shop to obtain the necessary approvals. The contact numbers of the health shops were obtained at the period from an online telephone directory. Verbal approvals were granted for the investigation in all the health shops after applications were made as requested or verbal discussions with staff at the health shops and copies of questionnaire designed for data collection was provided to the staff.

4.2.2 Participants

The investigation consisted of a convenience sample (discussed in Chapter 3, Section 3.5) of consumers purchasing alternative medicine in health shops where approvals had been obtained (Section 4.2.1).

The current investigation was restricted to health shops located in the Tyne and Wear region in the North East of England in UK within the proximity of the University where the research degree was taking place. This was due to issues of cost and difficulty to travel to further locations.

The investigation included three main types of health shops i.e. health food shops, pharmacy shops and Chinese medicine shops in the community setting within the region in the UK. The idea was to use a representation of different types of health shops in the investigations. Both health food shops and pharmacy shops are

known to sell formulated alternative medicine products. However, health food shops sell only alternative medicine and health food as opposed to pharmacy shops where it is only part of the retail activity and within a conventional set up. Chinese medicine shops are known to sell crude herbal remedies and other forms of alternative medicine including acupuncture. Another essence of including the Chinese medicine shops was that part of the original intended purpose of the research stated in the introduction was to carry out analytical investigations of the constituents of the prevalent herbal remedies and dietary supplements used by consumers in the health shops in the UK setting and cross cultural comparison with the setting in China (Section 4.1).

Also, the investigation included a sample of staff in the health shops to obtain their perception of the patterns of use of alternative medicine and attitudes of consumers to alternative medicine outlined in the aims of the study. The rationale was that staff perception would be an alternative source of data as it was apparent it would be difficult to access a wide sample of consumers purchasing alternative medicine by a single researcher. The idea of a point of contact in the health food shops was also that the investigation would contribute to knowledge the perception of the staff.

4.2.3 Informed consent and data collection

4.2.3.1 Interviews of consumers in health shops

One hundred and thirty consumers purchasing alternative medicine in health shops in the community setting were interviewed within June and July 2006 across five towns within the Tyne and Wear region in the North East of England. More than half of the consumers were interviewed across five health food shops and five long chain pharmacy shops face-to-face by the researcher as proposed in the methodology (Chapter 3, Section 3.3.2). The other quarter (31 consumers) of the interviews of the consumers were provided by two practitioners in two Chinese medicine shops. For ethical reasons the identity of the consumers, towns and health shops are kept anonymous.

Data collection was carried out each day in a health shop after approvals had been obtained. The same procedure applied on the day arranged in most of the health shops with the exception of the Chinese medicine shops where consumers were interviewed by two practitioners in the health shops. The reason given by the practitioners was patient confidentiality. In the other health shops the researcher approached consumers purchasing alternative medicine, apologised for interrupting their shopping and the researcher introduced herself to the consumers and informed them that permission to speak to them had being obtained from staff in the health shop. If the consumer was willing to carry on with the conversation, this followed briefly by explaining the reason for approaching the consumer was for a project at the University of Sunderland to find out about the use of alternative medicine by consumers. It was explained to consumers that this involved a few questions like what they are purchasing and what the alternative medicine would be used for. Then consumers were asked if they would like to ask any more questions before proceeding to interview consumers who agreed to answer the questions with the predesigned questionnaire (Chapter 3, Section 3.3.1).

4.2.3.2 Self-filled questionnaire by staff in health shops

A total of 24 staff self-filled a questionnaire across five health food shops and seven pharmacy shops. Half of the staff in the investigation included pharmacists and six were other staff in the pharmacy shops and staff in health food shops respectively. The identity of the consumers, towns and health shops are kept anonymous for ethical reasons.

Prior approvals were sought from the health shops (Section 4.2.1) and on the day agreed staff were informed about the investigation and requested to fill in a questionnaire (Appendix 4). Questionnaires were collected immediately or at other specified dates.

According to the rationale in Section 4.2.2 the questionnaire was designed to obtain the opinions of the staff regarding the patterns of use of alternative medicine by consumers and the consumers' attitudes to alternative medicine. Interview of staff in the health shops was not considered as essential as it was required for the consumer, as previously discussed in Chapter 3. Other than that

the advantage of interview would have been to ensure that the staff filled in questionnaire themselves. However, it was felt trustworthy professionals could be relied upon. Self-filled questionnaire was suitable to collect data from the staff instead and essentially avoids intrusion that may have occurred with interview of the staff activities in work places.

5. An Investigation of 'Alternative Medicine' Use by In-patients in Secondary Healthcare Setting within the North East of England

5.1 Introduction

There were few published studies in the literature on the prevalence of use of alternative medicine by adult patients attending the secondary healthcare setting, a major part of the healthcare system in the UK (Chapter 2, Section 2.4). Previous studies that had been identified had been mainly conducted among ambulatory patients attending a primary healthcare setting. It also did not help that there were inconsistencies in the prevalence of use of alternative medicine reported across these studies and that none of the studies identified was conducted in the North East region of England. It was anticipated that, amongst other things, there would be concerns regarding the disclosure of use of alternative medicine by patients in hospital and possible adverse outcomes of alternative medicine. (The interest in this patient population setting had also been due to being stimulated by the researcher's personal background as a pharmacist with growing interest in patient safety. Also, having experience in hospital pharmacy and a master degree in medicines management in the UK was a motivation to conduct research in this particular direction.)

Initially only one study was identified as having addressed the prevalence of alternative medicine use by in-patients in a hospital setting in England (Lewith *et al.*, 2001). This was specific to a cancer group that consisted of 56 in-patients, 79 out-patients and 27 hospice cancer patients in 2001 at the Royal South Hants Hospital, Countess Mountbatten House and Oakhaven Hospice in Southampton. This study cannot be said to be representative of the in-patient population. Also the knowledge of the prevalence of alternative medicine use among in-patients was reported from a list of about only fourteen types of alternative medicine currently used within the NHS. This would have rendered the data collection unreliable if the in-patient would have been using other alternative medicine outside of the NHS context or at other period of time.

In another study found later during the update of the literature (Shakeel *et al.*, 2008), a higher prevalence of use of alternative medicine was reported i.e. ever-

use by 69% among the patients admitted on surgical specialty ward in Scotland. The reason for the high prevalence of use of alternative medicine among the in-patients was still unclear from this study.

The nature of the patient population might arguably be the reason that the use of alternative medicine had been reported being higher then Shakeel *et al*., (2008) or other studies among ambulatory patients (Clarke, 1993; Featherstone *et al*., 2003) than the general population (Chapter 2, Section 2.3). This however contradicted the reports of lower or similar prevalence of use of alternative medicine in other patient-focused studies (Section 2.4) including the other in-patient study (Lewith *et al*., 2001).

The method of data collection on the prevalence of use of alternative medicine was also an issue. For example the use of interview among patients may be a reason for a high prevalence of use of alternative medicine of 69% (Clarke, 1998) as in line with the Ernst (2000b) suggestion that studies that use interviews are more likely to have a higher prevalence of use of alternative medicine. On the other hand this was in contrast with the Shakeel *et al.* (2008) study that used structured questionnaire or another study conducted among patients visiting a primary healthcare for which higher prevalence of use of alternative medicine (Featherstone *et al*., 2003) was found. It was still however possible that with structured questionnaire the actual respondent to the questionnaire and complete response was not guaranteed (Chapter 3, Section 3.3.2).

Harris and Rees (2008) suggested in their systematic review that, in studies that include both therapies and alternative medicine products, higher prevalence of use of alternative medicine is reported. That was evident in the study among the general population in which a 10% decline of the prevalence of use of alternative medicine when the use of products bought over the counter was excluded (Thomas *et al*., 2001). This was contrary to the method used by Lewith *et al*. (2001). On the other hand Shakeel *et al*. (2008) had included both herbal preparations and therapies with their questionnaire, albeit this was only a tick list of only 48 ‘common’ ones. This might be an explanation for the lower prevalence of use of alternative medicine reported than by Featherstone *et al*. (2003).

In the previous literature it had been suggested that the time estimate of use of alternative medicine impacts on the prevalence of use of alternative medicine that will be reported in a study (Section 2.5). The nearest prevalence of use of alternative medicine reported was use in the previous year, but the authors did not assess alternative medicine use on the day of admission or weeks before admission to surgery (Shakeel *et al*., 2008). It was unknown if that might have added to the reason for the lower prevalence of use of alternative medicine compared to Featherstone *et al*. (2003) study.

The previous studies in the literature review had been consistent in that females used alternative medicine more than males. In the study conducted by Lewith *et al.* (2002) that had included cancer in-patients the demography with respect to use of alternative medicine had not been reported. Interestingly, Shakeel *et al.* (2008) had more male patients than female in-patients and similarly reported that more female in-patients used alternative medicine. They had acknowledged not to have asked the in-patients about use on the day before or within a few weeks prior to admission and about other factors thereby rendering their finding less conclusive.

Conflicting evidence in the sources of recommendation provided uncertainty in the previous literature review about the influence for use of alternative medicine. However the influence was often external advice (Table 2.2 and Table 2.4). Shakeel *et al*. (2008), similarly to Emslie *et al*. (1996) a study among the general population, contrary to expectation reported that the healthcare professional was the second highest source of recommendation. Other studies among patients (Chandola *et al*., 1999; Clarke, 1998) had contrasting findings.

Attitude to alternative medicine was also influenced by the in-patients' own perspective on reasons for use and views about alternative medicine (Chapter 2, Section 2.6.2). The essence of attitudes to alternative medicine would be important to further understand behaviour and to predict use of alternative medicine by patients in the secondary healthcare setting. In their study, Lewith *et al.* (2002) had not separated out the results of attitudes from that of other out-patients and hospice patients. Therefore, it was difficult to ascertain what the in-patient attitudes to alternative medicine would be from the study. Also, attitudes to alternative medicine to be investigated were intent of use of alternative medicine

and perceptions of side-effects and effectiveness on the basis that they would be a major priority to patients. The potential of drug interaction with alternative medicine was because, separate to the issue of side-effects, it was important to find out how this might be perceived by the in-patients.

The original ideas for the current investigation remained that the knowledge of disclosure of use of alternative medicine by patients or the documentation during admission in hospital in the UK was unknown and also that knowing the reasons for in-patient non-disclosure might be useful to improve disclosure in this practice setting. Similarly to the general population and ambulatory patients in the UK, evidence of lack of disclosure of use of alternative medicine by in-patients to their doctors had been documented (Shakeel *et al*., 2008). There was very little by the way of UK studies that provided reasons for disclosure of use of alternative medicine to healthcare professionals. Only one such study was found. This was conducted among eighteen female herbal users (Vickers *et al*., 2006). Evidence from a study in Australia of adult patients in a hospital revealed that documentation of alternative medicine as reported in medical records was only 28% (Cockayne *et al*., 2005). Also, in spite of intervention via 'education' to health professionals the recording rate increased by only 16%.

The evidence of lack of disclosure of use of alternative medicine to healthcare professionals added to the concern that the real extent of potential interactions was unknown. A major concern with herbal remedies and dietary supplements (Section 2.2.1) therefore was concurrent use of conventional drugs and potential drug interactions. There was no evidence of such an exploratory study already having taken place in the UK. For example in the USA (Peng *et al*., 2004) explored the incidence of potential interactions between dietary supplements in 458 out-patients taking prescription medications. A crucial point was that in their study more than 90% of herbal users did not disclose the use of herbal medicine to their health professionals. They found that one hundred and ninety-seven (43%) of these patients taking at least one dietary supplement with prescription medication(s) and among these, 89 (45%) of the patients had a potential for 'drug-dietary supplement' interactions of any significance.

Under-reporting remained inevitable and was suggested as being likely to be significant for herbal remedies, since users typically do not seek professional advice about their use of such products far less report if they experience adverse effects (Barnes, 2003). It was apparent that adverse reactions to alternative medicine did not occur with herbal medicine alone (Chapter 2, Section 2.2.1). For example, in the case of a 64-year old female patient admitted to hospital for a suspected myocardial infarction, further analysis of antibody titre gave rise to the diagnosis of *Herpes zoster* (shingles) and the patient later claimed to have been treated for three days with an overtly vigorous Shiatsu massage (Mumm *et al*., 1993).

Another was the suggestion by Blenkinsopp *et al*. (2007) in their review that 'patients do not report all symptoms of conventional drugs they suspect to be adverse drug reactions (ADRs) to their general practitioner (GPs) and GPs do not record all symptoms which may be reported to them'. Also the researchers concluded that there was significant under-reporting of ADRs to regulatory authorities. Another interesting point was that while healthcare professionals' reports contained a higher percentage that were classified as 'serious', the patient interviews were said to be more likely to detect ADRs that had caused their admission to hospital. A further key point was that it was found overall in the published literature and international experience (Blenkinsopp *et al*., 2007) that patient reports identified possible new ADRs that had not previously been reported by health professionals. They also concluded that 'reports from users– especially with respect to behavioural effects – communicated information that professional reporters could never be expected to provide and did this much more clearly and intelligibly than the Yellow Card reports'.

The prevalence of use of alternative medicine among in-patients in the hospital setting prior to admission or during admission in hospital was not well known, albeit current evidence of in-patients demonstrated that they were likely to use alternative medicine. This was supported further by the evidence of lack of disclosure of use to healthcare professionals that was also unknown at the time of admission in hospital. Another concern was with evidence of exploratory studies outside the UK of potential interaction between alternative medicine and conventional drugs i.e. herbal remedies and dietary supplements. These were

insightful but could not be extrapolated to the UK setting. In addition the evidence was that patients report experience of adverse reactions of conventional medicine to researchers that was not disclosed to healthcare professionals and the tendency was that this might be evident with alternative medicine. Given the introduction so far it was thought that this approach of research of patients' experience of adverse reactions that has not been known to have been used for alternative medicine among hospitalised patients in the UK might be insightful.

5.1.1 Aims and objectives

Arising from the points discussed in the background above, the aim of the current study was to investigate alternative medicine use by in-patients in secondary healthcare setting within the North East of England. There were to be three aspects set to this. It was decided to examine the patterns of use of alternative medicine by determining prevalence of use of alternative medicine prior to admission and during admission. Other objectives within this aim were to determine the demographic distribution of the in-patients using alternative medicine and the relationship between the demography of the in-patients with use of alternative medicine, types of alternative medicine used, indications for using alternative medicine and sources of recommendation of alternative medicine use to in-patients. Furthermore the aim was to determine the disclosure of use of alternative medicine in hospital and reasons from the in-patients. The second aspect of this investigation was aimed at examining in-patients' attitude to alternative medicine by determining the reasons for using alternative medicine and general views from the in-patients perspective, their intents of alternative medicine use, perception of effectiveness, side-effect and potential interaction of alternative medicine with conventional drugs. The final aspect of the study aim was to examine the incidence of possible adverse outcomes of alternative medicine used in terms of reports of side-effect reactions of alternative medicine used from in-patients and assessing potential interactions of both herbal remedies or dietary supplements and conventional drugs used by the in-patients.

5.2 Methods

The methods described here include specific approvals for this part of the study, participants, informed consent and data collection, and a description of the characteristics of the in-patients in the investigation. The general methodology for the study was presented in Chapter 3.

5.2.1 Ethics and other approvals

Due to the nature of the population in this investigation ethical approvals were obtained from the University and National Research Ethics Service and other necessary approvals. The ethical approval was provided by the University after the national ethical approval was obtained in 2008 (Appendix 1).

An ethical approval from the National Research Ethics Service (NRES) was applied for twice before a final approval was granted in October 2008 (08/H0908/43) for the investigation of in-patients in a secondary care setting within the North East of England. An initial online and postal application was made in 2007 then to COREC. A research protocol for the investigation and other documents which included a copy of the questionnaire for the investigation, patient information sheet and consent form were submitted with the applications. The first application was refused with reasons that included queries regarding an initial sample size of above 800 to be too large and that this was not feasible within the initial estimate of the time frame of 7 months for the study. The queries by the ethics committee were addressed and an application was made in May 2008 to NRES the newly named ethics groups and the committee meeting was attended. Further clarification was given for permission to review the in-patient medical notes (Chapter 3, Section 3.3.3). The duration of the study was readdressed and re-estimated at 12 months as described in the latter part of the Methods under the informed consent and data collection process (Section 5.2.3). The outcome of the second application was that there were more administrative queries from the Ethics Committee. The consent forms were requested to be on a single page and, like the information sheet, should be printed on the hospital letter headed paper. The committee demanded that the researcher obtained an honorary contract of employment at the hospital of study. All queries were addressed and a revised

application was again submitted. At this time the previous application was updated from the old version that was initially a numerical identification number of 5.5 to version 5.6. A conditional ethical approval was offered for the investigation on 31st July 2008 pending an honorary contract with the Trust being obtained and a final approval for the investigation was given on 2nd October 2008.

A Caldicott application (that ensures protection of patients' personal data) was required along with a Research and Development (R & D) permissions reference number C1043 before the ethical approval was granted. A first application was made to go with the first application for ethical approval and updated a second time to go with the second ethics application.

The honorary contract requested by the ethics committee before the final approval was obtained with the Northumbria NHS Health Care Trust (Appendix 2. p.246). As part of the employment procedure of the Trust an induction was attended on 20th of October 2008. In addition, a formal induction at the ward was attended in November 2008 before commencing the study.

5.2.2 Participants

This included patients at a district general hospital which is one of largest of ten hospitals of Northumbria NHS Health Care Trust in the region. In the year (2007/08) the hospital was reported to have admitted over 45,000 patients with admissions of patients in varieties of specialty wards (NHS Trust 2011). The secondary care setting for the study was chosen based on the matching interest of the hospital. It was important that the hospital provided support for the study so that the study could be feasible.

Five speciality wards were chosen for the investigation for a broad spectrum of in-patients including the surgical wards similarly to the previous relevant study (Shakeel *et al*., 2008) in the UK (Section 5.1). Other speciality wards included were General Medicine, Orthopaedics & Trauma, Elderly and Gynaecology. For ethical issues the Oncology specialty ward was not included and other specific wards for terminally ill patients were avoided. As the investigation was focused on adults, the paediatric wards were not included.

For ethical reasons and the population, a convenience sample (Chapter 3, Section 3.5.1-2) of in-patients was included. This population of patients are vulnerable and relevant activities go on in the medical wards. In-patients were eligible from the five specialty wards if available on ward at the time of the investigation, above the age of 16 and had given written informed consent to take part in the investigation (Section 5.2.3). An in-patient was excluded during this period if acutely ill or too poorly, not considered appropriate by medical staff or could not hold a conversation or communicate in English or were not approached or refused consent to take part in the investigation.

5.2.3 Informed consent and data collection

A face-to-face structured interview of a total of 240 in-patients who gave written consents was conducted across the five specialty wards from November 2008 to November 2009 and the review of the in-patients medical notes to collect other necessary data was completed in October 2010. Forty four in-patients had refused to participate after they were provided information regarding the investigation and seven in-patients withdrew during the interview process. Nine of the 240 in-patients refused consent for review of their medical notes and ten medical notes could not be accessed for review.

The data collection commenced in November 2008 after the ethics and other approvals were obtained (Section 5.2.1). The participants were in-patients in the five specialty wards i.e., general medicine, general surgery, orthopaedics and trauma, gynaecology and elderly speciality wards at the district general hospital (Section 5.2.2).

The initial plan to visit each of the fourteen wards in the five specialities chronologically was to ensure that each ward was visited for the same number of times giving each an equal chance. However, on commencing the investigation this had to be changed because it was only practical to work around the time that it was possible to gain access to a ward and when in-patients were available in a ward. Times varied for the medical ward rounds, visiting, meal times etc. The gynaecology ward was only open a specific day in a week and at particular times and it was only by chance that an in-patient might be free and without visitors,

being asleep or having some other reason for not being available. For the elderly ward it was that only at certain times the medical staff advised it was acceptable to approach patients. In addition, the problem was most often that patients with conditions such as dementia and hearing problems could not be included.

At every new visit to each ward the nurse manager or an appropriate medical staff on ward was approached and informed about the research and asked to identify in-patients who would be able to participate in the study. A list was written of eligible in-patients (names and Trust number) identified by the nurse or other medical staff able to participate in the investigation. This was available from the admission list on a white board in the hospital. This list made it possible to identify the correct patient, thus avoiding approaching or including a patient twice in the investigation and obtaining the correct medical note of the in-patient for review.

The in-patients were approached individually to provide them with verbal information and the participant information sheet (Appendix 2. p.216). The participant information sheet for the investigation was in accordance with what had been approved by the NRES ethics committee (Section 5.2.1). After the investigator introduced herself, the information was provided to the in-patient about the purpose of the investigation and the principle of voluntary participation. An information sheet was given to in-patients who agreed to carry on with the investigation. If an in-patient refused, that in-patent was thanked and the next available in-patient was approached.

A definition of alternative medicine and examples were provided to in-patients verbally and via the information sheet to ensure that the in-patient had an appropriate understanding of the investigation, to ensure transparency and in order to obtain accurate data regarding the investigation from in-patients. The definition of alternative medicine given matched the scope of alternative medicine (Chapter 1, Section 1.1.2 and Chapter 3, Section 3.3.1.2). Other information on the information sheet included that there was no direct benefit, it did not affecting their medical care in the hospital and that the findings of the investigation would be available in the hospital on completion of the research programme. The in-patients were also informed on the participant information sheet about the approvals that

were obtained for the investigation and were given relevant contacts if there was any query.

After an in-patient had agreed to participate an informed consent was obtained and also a recommendation of the NRES ethics committee. The consent form (Appendix 2. p.218) along with other documents was approved by the ethics committee. It consisted of a short title of the study, other information for patients to tick boxes if in agreement and name prints with signatures from both the patients and researcher. The consent form also gave the in-patients an option to agree to the review of medical notes.

After the written consent had been obtained an interview was carried out for each in-patient with the pre-designed semi-structured questionnaire (Chapter 3, Section 3.3.1) also included in the approval of the NRES ethics committee.

It was considered at the outset that between 20 to 30 minutes would be a reasonable length of time to interview each patient. This was decided upon on the basis of the semi-structured nature of the questionnaire, the population of in-patients and insight from previous studies. It was also important to provide the in-patient with knowledge of how long the interview was to last and, as part of the process of obtaining an informed decision from the in-patient by the NRES ethical committee, was provided verbally and on the participant information sheet. This was also useful to estimate the duration for the period of the data collection that was approved by the ethics committee. In a study of GP patients in the UK 20 minutes was used to fill out a self-administered questionnaire of 10 pages (Furnham and Forey, 1994). Another more reliable estimate was considered to be that from another study in the UK (Shaw *et al*., 2006). This study however consisted more of in-depth interviews that lasted between 25 minutes to 1 hour with adults and the interviews were said to have lasted 30 minutes to 1.5 hours when using a semi-structured interview of broad topics of NHS experience asthma care when the parents were paired with their children (Shaw *et al*., 2006).

The duration of the time taken to interview the in-patient varied between 5 to 75 minutes i.e. well above the anticipated time of 20 to 30 minutes. The most common time of interview was 20 minutes, but this was with just 25 in-patients out

of the 240 in-patients interviewed. This time excluded breaks during the interview often due to the case of interruption by medical staff or visitors, and although meal times were often avoided in the process, there were some situations when this happened.

It was thought that it would take about twelve months to collect data from the estimated sample size of 87 to 317 (Chapter 3, Section 3.5.4). This was on the basis that an estimated time of at least 20 to 30 minutes would be taken to interview one in-patient so that it was extrapolated that in 5 to 7.5 hours a total of 15 patients per week could be interviewed (One ward per week = 15 in-patients). The information from the hospital at the time was that all the five specialty areas of interest consisted of a total of 14 wards. Therefore, it was estimated that if 15 patients were to be included per week, then for 14 wards = 14 weeks = 14 x 15 = 210 in-patients. To give more assurance that the sample size estimate could be achieved, if possible with at least five in-patients per week the time was tripled to 14 x 3 = 42 weeks (ten and half months) and further extended which brought about the twelve months of planned data collection that was approved by the NRES.

A review of the in-patients medical notes to collect other necessary data (Section 3.3.3) was completed in October 2010, almost a year on from the last interview of the in-patients in November 2009. Initially it was planned to review the medical noted concurrently with the interviews on ward. However, this was practically impossible most times. Certain issues came to light and the review had to be left for after the interview. For example, it was difficult to keep hold of the medical notes long enough to abstract the data. It was also not possible to get appropriate or full information, such as information on conventional drugs or length of stay and current medical conditions, except after the discharge of the patients. The medical records were often eventually reviewed at a different location. This required another application for an approval of audit. The medical notes were often retrieved from shelves in the medical records stored according to the trust number most conveniently on the weekends. This was because the staff were busy with the notes on week days. In some cases the notes were back on ward because the in-patient had been readmitted to the hospital or a different hospital. There were also extenuating circumstances that were experienced during these times of data collection. These included travelling times to the hospital, teaching responsibility in

the University and an interruption in the research programme. This was regarding the researcher's visa between 2009 and 2010.

6. Results

The results herein relate to the present study carried out on the investigations of alternative medicine use by consumers in health shops in the community setting and in-patients in the secondary healthcare setting within the North East of England. The findings are presented for each of the investigations with respect to the aims. These were to examine the patterns of use of alternative medicine, the consumers' and in-patients' attitudes to alternative medicine and incidence of possible adverse outcomes of alternative medicine used by the consumers and in-patients (Chapter 4, Section 4.1.1 and Chapter 5, Section 5.1.1).

6.1 Investigation of Alternative Medicine Use by Consumers in Health Shops in the Community Setting (Study 1)

Of the 130 consumers, a total of 113 consumers were white British, ninety were female and forty were male consumers (Figures 6.1.1.1-2 and Table 6.1.2). The consumers were mainly within the age group of 46-59 years. This investigation was carried out in June to July, 2006 within the Tyne and Wear region in the North East of England. The methods used for the study were presented in Chapter 3 and Chapter 4, Section 4.2.

6.1.1 Patterns of use of alternative medicine by consumers in health shops

6.1.1.1 Demographic distribution of consumers using alternative medicine

The findings showed that the consumers using alternative medicine in the health shops were mainly white British (Figures 6.1.1.1-2). The majority of the consumers were females (Table 6.1.2). Also, overall, the consumers were mainly in the age group of 46-59 years. The gender and age group distribution of consumers in the pharmacy shops was consistent with that from all the three health shops combined together and also with the response of the staff on demographic distribution of consumers. It must be noted though that most of the staff in this investigation had been in the pharmacy shops. For health food shops taken in isolation, half of the staff thought that all ages are likely consumers of alternative medicine in the health food shops. However, this could be down to the wording of the question in the

questionnaire “What age groups are likely to ask about alternative medicines?” (Appendix 3), and there being no instruction of not choosing more than one option. Similarly, one third of the staff in the health food shops thought that male and female were both most likely consumers of alternative medicine in the health food shops. That was interesting because the number of male consumers in the investigation had been a lot higher in the health food shops as well as the Chinese medicine shops in comparison to the pharmacy shops. The age distribution of the male consumers was also different to the female consumers in the two former health shops. Most of the male consumers in the health food shops being in the age group of 60-75 years in the health food shops. There was even lesser difference between the number of male and female consumers in the Chinese medicine shops, there being almost the same number of male and female consumers. Also, the most frequent age of both the male and female consumers in the Chinese medicine shops was 31-45 years in contrast to the other two health shops. However the predominant age of 46-59 years of female consumers in the health food shops was consistent with the pharmacy shops. Meanwhile those above 75 years of age were the least frequent consumers of alternative medicine in all three health shops. This age group of consumers had the least number of consumers in the pharmacy and health food shops. At the same time no consumer in the age of above 75 years was found to have frequented the Chinese medicine shops. It was interesting that none of the staff in the health shops were of the opinion that the most likely age group of consumers was above 75 years. With the use of alternative medicine being a constant among the consumers in this investigation, it was deemed to have been impossible to carry out further statistical analysis of the findings. In reference to the inferential statistical analysis using a chi-square or Fisher’s exact test, this can only be carried out between two variables (Chapter 3, Section 3.4.1.2).

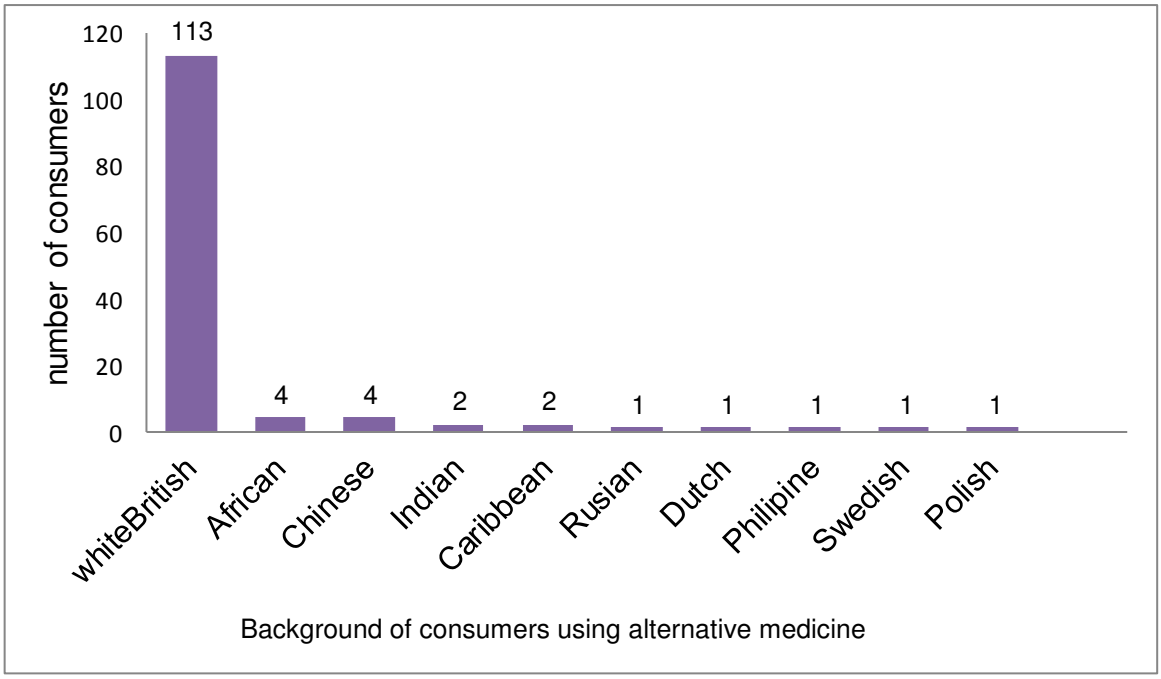


Figure 6.1.1.1 Frequency distribution of the backgrounds of consumers using alternative medicine in the health shops from June to July, 2006 within the Tyne and Wear region in the North East of England

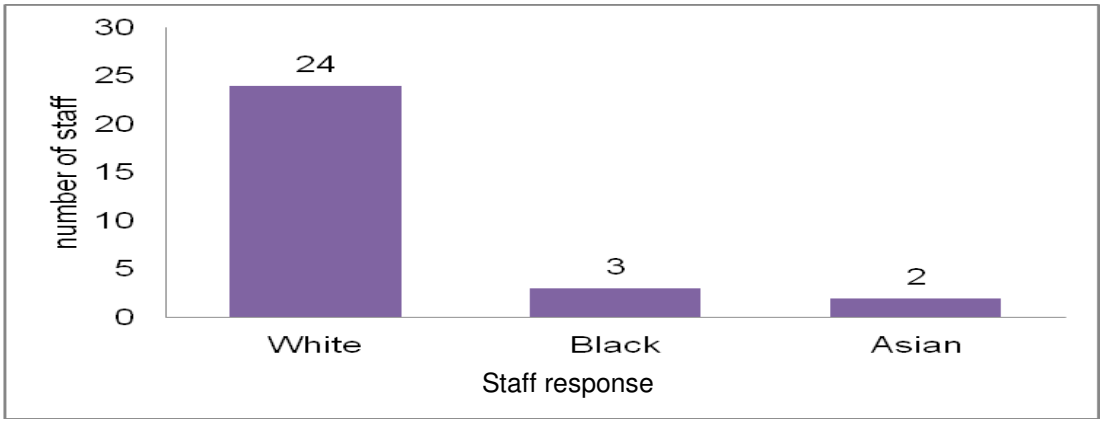


Figure 6.1.1.2 Frequency distribution of the response of staff in health shops about the background of the most likely consumers of alternative medicine in the health shops

Table 6.1.2 Frequency distribution of consumers using alternative medicine by gender and age groups and response of staff in the health shops

Health shops	**Frequency of distribution of consumers using alternative medicine (n=number of consumers; percentage)**				
	Total number of consumers	**Gender of consumers**	**Age group of consumers in years**		
All three health shops	(n=130)	Female (n=90; 69.2%) Male (n=40; 30.8%)	All Consumers	Female	Male
			46-59 (n=40) 31-45 (n=31) 60-75 (n=28) 18-30 (n=27) Above 75 (n=4)	46-59 (n=33) 31-45 (n=20) 18-30 (n=19) 60-75 (n=16) Above 75 (n=2)	60-75 (n=12) 31-45 (n=11) 18-30 (n=8) 46-59 (n=7) Above 75 (n=2)
Five health food shops	(n=68)	Female (n=48; 70.6%) Male (n=20; 29.4%)	46-59 (n=23) 18-30 (n=20) 60-75 (n=17) 31-45 (n=6) Above 75 (n=2)	46-59 (n=20) 18-30 (n=15) 60-75 (n=9) 31-45 (n=2) Above 75 (n=0)	60-75 (n=8) 18-30 (n=5) 31-45 (n=4) 46-59 (n=3) Above 75 (n=2)
Five pharmacy shops	(n=31)	Female (n=26; 83.9%) Male (n=5; 16.1%)	46-59 (n=13) 31-45 (n=9) 60-75 (n=5) 18-30 (n=2) Above 75 (n=2)	46-59 (n=10) 31-45 (n=8) 60-75 (n=4) 18-30 (n=2) Above 75 (n=2)	46-59 (n=3) 31-45 (n=1) 60-75 (n=1) 18-30 (n=0) Above 75 (n=0)
Two Chinese Medicine shops	(n=31)	Female (n=16; 51.2% Male (n=15; 48.4%)	31-45 (n=16) 60-75 (n=6) 18-30 (n=5) 46-59 (n=4)	31-45 (n=10) 60-75 (n=3) 46-59 (n=3) 18-30 (n=2)	31-45 (n=6) 18-30 (n=3) 60-75 (n=3) 46-59 (n=1)
Health shops	**Total number of staff (n=number of staff)**	**Response of staff on gender and age group of consumers most likely to use alternative medicine (number of staff)**			
Pharmacy shops	Pharmacist (n=12) Pharmacy staff (n=6)	**Gender of consumers** Female (n=23) Male and Female (n=2)	**Age group of consumers in years** 46-59 (n=8) 31-45 (n=6) 60-75 (n=5) 18-30 (n=2) All ages (n=3)		
Health food shops	Staff (n=6)				

6.1.1.2 Prevalent types of alternative medicine used

More than two-third (87 of the 130 consumers) were using at least one herbal remedy or dietary supplement (HS) (Figure 6.1.3.1). Chinese herbs were the most frequently used HS. However their use was reported only among consumers in the Chinese medicine shops. Nutritional oil, St John's Wort, glucosamine, valerian and evening primrose were the top three most used HS by the consumers in the health food and pharmacy shops (Figure 6.1.3.2). Acupuncture was the most used of the other forms of alternative medicine (Figure 6.1.3.3). However, similarly, this was only used by consumers in the Chinese medicine shops. On the other hand aromatherapy and homeopathy were the most used other forms of alternative medicine by consumers in the health food and pharmacy shops. The consistency

between the finding of the consumers and the responses of the staff established the validity of the prevalent types of alternative medicine used by consumers in the health food and pharmacy shops. The staff in the health food and pharmacy shops gave further insight of other types of HS most used by consumer (Figure 6.1.3.2). Saw palmetto and ivy thyme were the only HS completely unrelated to those found used among the consumers. KLB-6 contained cider vinegar and kelp were used by consumers and soy lecithin had been among the top HS used by consumers (Table 6.4 and Figure 6.1.3.2). Adios contained dandelion which was the same constituent found in water balance which was among the top 10 HS used by consumers. The reason for the response of the staff had not been determined in the current investigation. However, additional explanations were included in response to the question in the questionnaire (Appendix 3) by two staff and these comments were found to be logical. The reason that the sales of echinacea were seasonal from the explanation of a staff was logical to the use by only two consumers in the finding of this current investigation (Table 6.4). Another staff member in the pharmacy also intimated that St John's Wort was not sold as much as before because of adverse effects that had been reported in the press. However, this still transpired to be among the top HS according to the collective response of the staff and used by consumers (Figure 6.1.3.2).

On further analysis of the data there were variations in the types of alternative medicine used by the gender and age groups of the consumers (Table 6.1.3.4). However, a definitive conclusion could not be drawn from this data. It was however convincing that there was a difference by the indications of use (Section 6.1.1.3). For example, the most common HS used by female consumers was evening primrose. While this might be self-evident in that evening primrose is used to treat the menopause, there were other less obvious findings. For example, more male consumers than female had used water balance and milk thistle, African herbs, Indian ayurvedic and chiropracty. Also that glucosamine and acupuncture were the most common alternative medicine used among the male consumers and their use mainly among older consumers was related to its use for musculoskeletal condition.

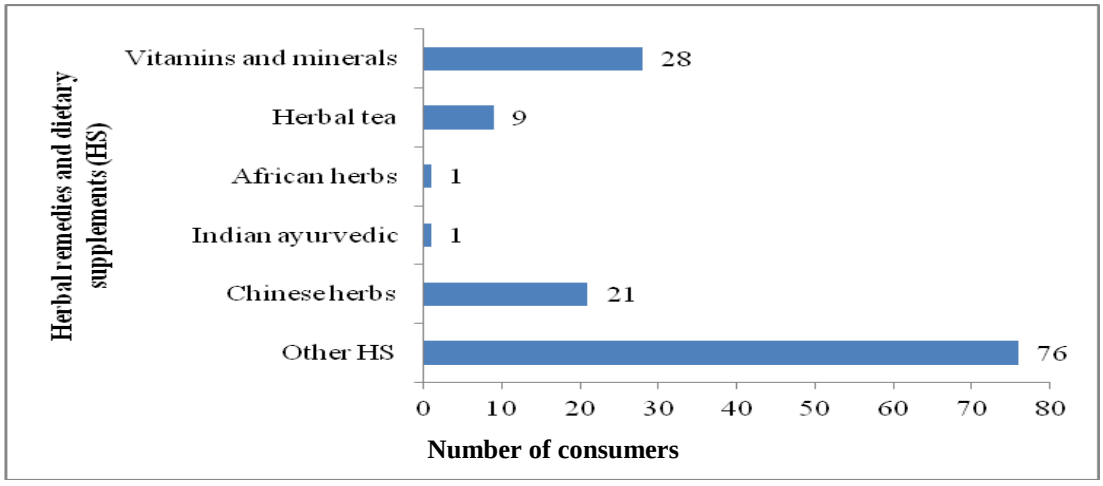
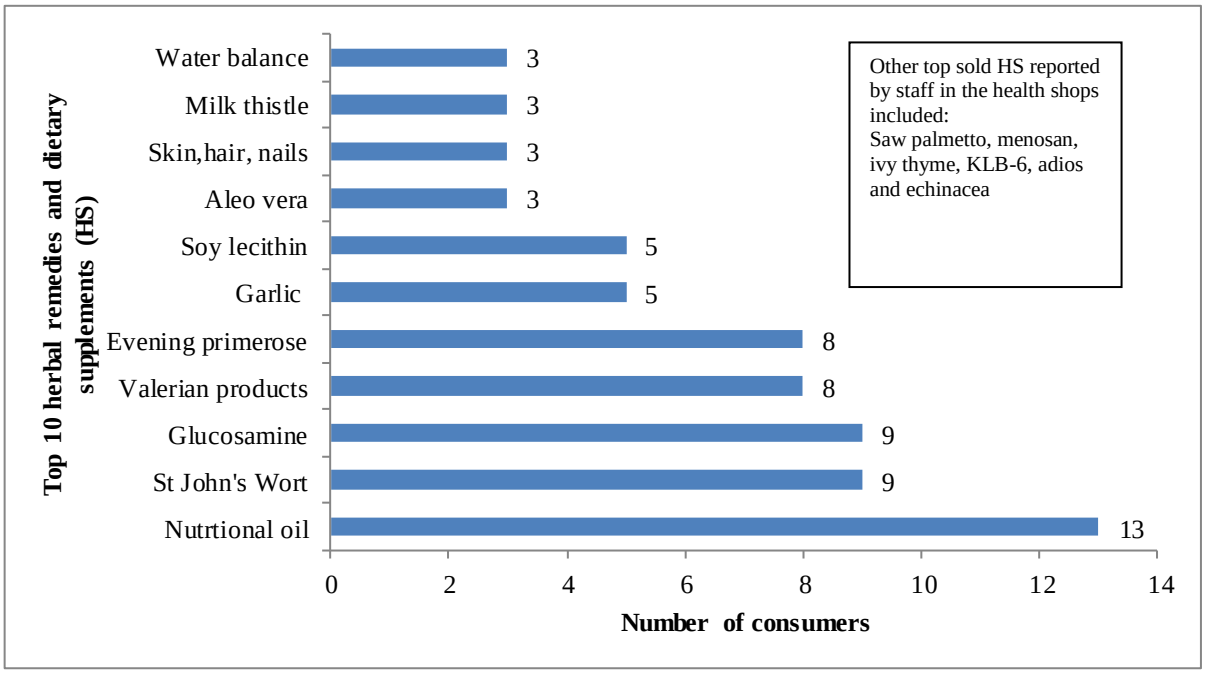


Figure 6.1.3.1 Frequency distribution of herbal remedies and dietary supplements (HS) used by consumers



Figures 6.1.3.2 Frequency distribution of top 10 herbal remedies and dietary supplements (HS) used by consumers in the pharmacy and health food shops

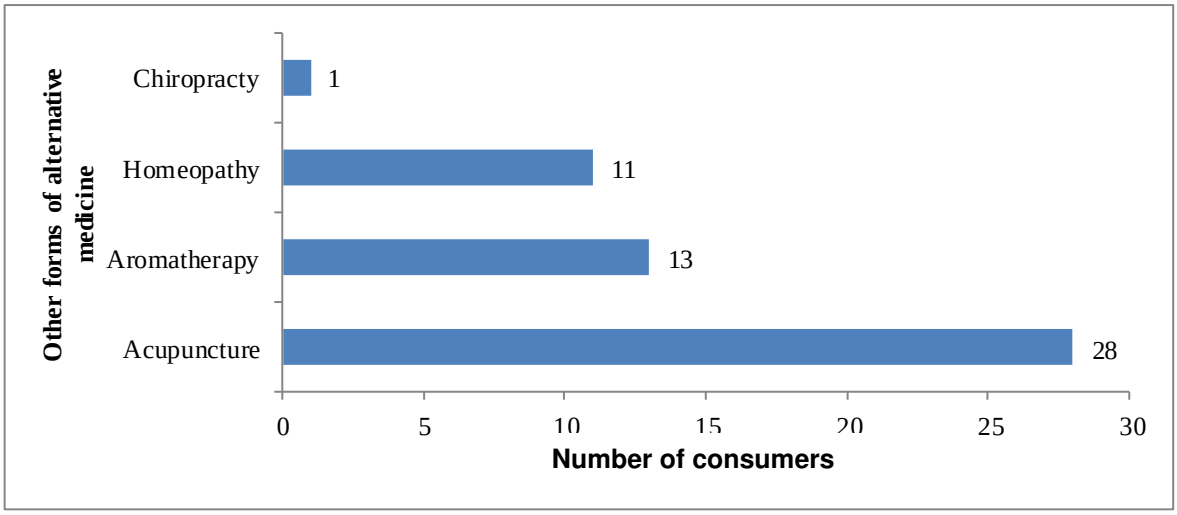


Figure 6.1.3.3 Frequency distribution of other forms of alternative medicine used by consumers

Table 6.1.3.4 Types of alternative medicine used by gender and age group of consumers

Types of alternative medicine	**Gender (number of consumers)**		**Age group of consumers in years (number of consumers)**				
	Female	Male	18-30	31-45	46-59	60-75	above 75
Herbal remedies and dietary supplement (Figure 6.1.3.1)	Chinese herbs (12)	(9)	(4)	(9)	(4)	(4)	-
	Africa herbs (0)	(1)	-	(1)	-	-	-
	Indian ayurvedic (0)	(1)	(1)	-	-	-	-
Top 10 herbal or dietary supplements (Figure 6.1.3.1)	St John's Wort(7)	(2)	(4)	(4)	(1)	-	-
	Glucosamine (6)	(3)		(1)	(3)	(4)	(1)
	Valerian products (7)	(1)	(1)	(3)	(1)		(1)
	Evening primrose (8)	-	-	(3)	(4)	(2)	(1)
	Garlic (4)	(1)	-	(1)	(1)		(1)
	Soy lecithin (3)	(2)	-	(3)	(1)	(2)	-
	Aloe vera (2)	(1)	-	(2)	(1)	(1)	-
	Skin, hair , nails (3)	-	-	-	(2)	-	-
	Milk thistle (1)	(2)	(1)	(1)	(1)	(1)	-
	Water balance (1)	(2)	-	-	(2)	-	-
Other forms of alternative medicine (Figure 6.1.3.3)							
	Acupuncture (16)	(12)	(4)	(15)	(5)	(4)	-
	Aromatherapy (12)	(1)	(3)	(5)	(2)	(3)	-
	Homeopathy (9)	(2)	(4)	(4)	(1)	(2)	-
	Chiropracty (0)	(1)	(1)	-	-	-	-

6.1.1.3 Indications for using alternative medicine

The most common indications for using alternative medicine among consumers were related to mental and emotional issues and secondly to musculoskeletal related conditions (Table 6.1.4). There was however disparities by gender and

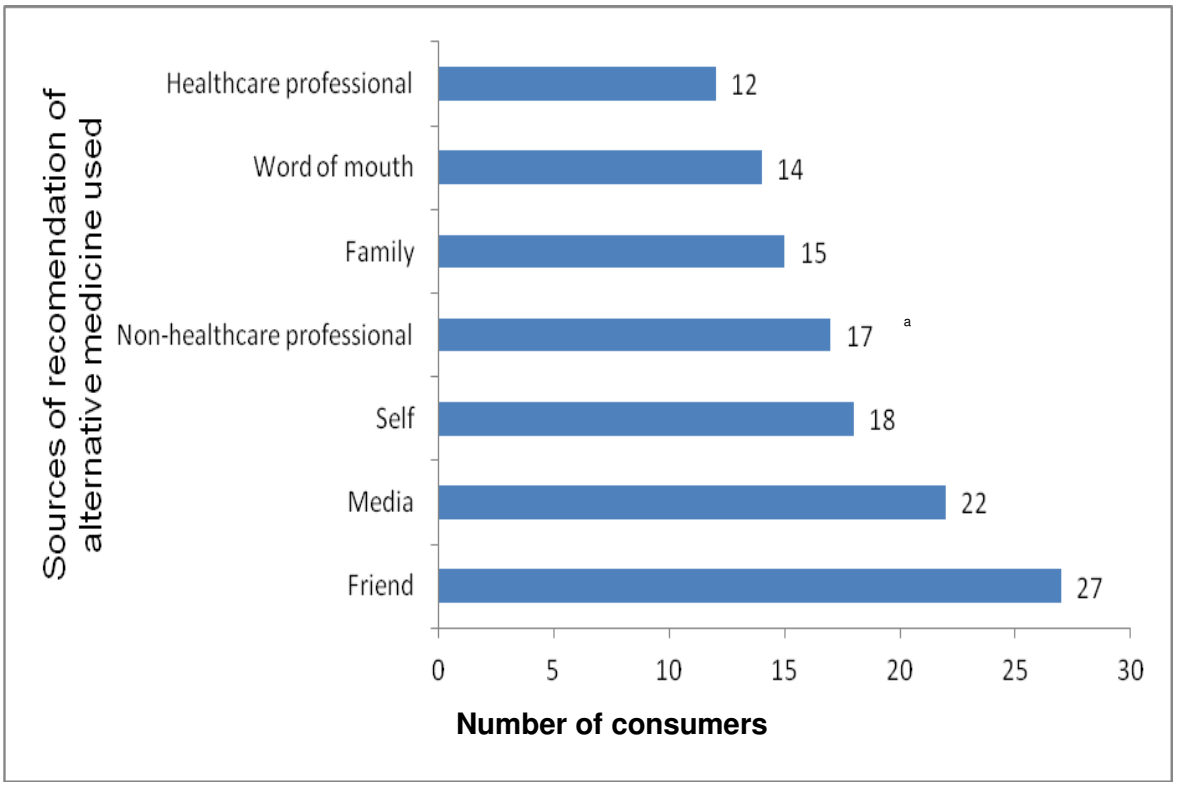
across the age group of the consumers. There was a very clear distinction regarding use of alternative medicine for menopausal conditions only among female consumers and prevalently used among the age group of 46-59 years. There was also a substantial difference in the use for depression, in the ratio of nine female to one male consumer. Consumers using alternative medicine for depression were mostly in the age group 31-45 years. However, this was by a difference of one consumer from the age group of 46-59 years and the youngest age group of consumers (18-30 years). On a similar note, the most common use of alternative medicine, for dieting and stress related conditions, was also mainly among the female consumers. However, the indications were most commonly reported among the youngest consumers (18-30 years). Use for musculoskeletal related conditions was also most prevalent among the female consumers. However, consumers in the age 46-59 years and older consumers of 60-75 years were more frequent users for these conditions. On the other hand, a higher number of male to female consumers and younger consumers (31-45 years) were found to have used alternative medicine in relation to pain relief. Only one consumer used alternative medicine for low sperm count. Also likely to be obvious was that more male consumers used alternative medicine for alopecia. The use for alertness was also most commonly reported among the male in-patients and youngest age group of consumers (18-30 years). Similarly there was more frequent use of alternative medicine for cardiovascular related conditions among the male consumers. Also, having a cardiovascular related condition was the second most common indication for use of alternative medicine among the male consumers. This was reported most among the consumers of 46-59 years and older age groups of 60-75 years.

Table 6.1.4 Indications for using alternative medicine with the age group and gender of consumers and types of alternative medicine used

Indications for using alternative medicine	Frequency distribution (n=number of consumers)	Gender of consumers		Age group of consumers					Types of alternative medicine used (number of consumers)
		Male	Female	18-30	31-45	46-59	60-75	above 75	
Mental , behavioural emotional, psychological or nervous problems	44								
Sleep aids	9	3	6	2	2	2	2	1	Quiet life (1), valerian (4) , distress (1), kalms (3),
Calm	9	2	7	2	5	1	1	-	Kalms (4), St John's Wort(2), bach remedies (3),
Relaxation	3	-	3	1	1	1	-	-	Aromatherapy (3)
Depression	10	1	9	3	4	3	-	-	St John's Wort(4), 5HT-P (1)· Chinese herbs (2), acupuncture (2) ayurvedic (1)
Stress	7	2	5	5	-	2	-	-	St John's Wort(2), ayurvedic (1), Chinese herbs (1), acupuncture (1), bach (2), aromatherapy oil (1)
Anxiety	2	-	2	1	1	-	-	-	Chinese herbs (1), acupuncture (1), bach (1), kalms (1), St John's Wort(1)
Alertness	2	2	-	2	-	-	-	-	Gingko biloba (1), St John's Wort(1)
Tiredness	2	2	-	-	1	1	-	-	Ginseng (1) , St John's Wort(1)
Energy	1	-	1	-	1	-	-	-	Vitamin B (1), CO Q10 (1)
Musculoskeletal problem	26								
Arthritis/ joint problem	15	7	8	1	3	5	5	1	Glucosamine (6), phenmacare-ginger, cod liver oil, glucosamine (1) , devils claw (1), Chinese herbs (3), acupuncture (4), cod liver oil (4), ayurvedic (1)
Sciatica	2	-	2	-	-	-	2	-	Chinese herbs (2) , acupuncture (2)
Pain relieve (joint, back, chest)	9	6	3	2	5	-	2	-	Aromatherapy (1), acupuncture (6), chiropracty (1), ayurvedic (1)
Other pain									
Migraine	2	1	1	1	1	-	-	-	Homeopathy (2)
Menopausal condition	19	-	19	-	5	10	3	1	Evening primrose (2), skin hair and nails (6), collagen (2), calcium (1), isoflavone (1), starflower- evening primrose double strength (3), black Cohosh (1), menolife-isoflavone, black cohosh, St John's Wort(1), menocare-asoka tree, chebulic myrobalan, shatavar (1), salvia (1), seven seas-cod liver, vitamin ADE- (1)
Cardiovascular	13								
BP and cholesterol lowering	5	5	5	1	1	3	3	2	Cod liver oil (1), Garlic (3), soy lecithin (1), hawthorn (1), cardiocare- omega oil+ garlic (1), Chinese herbs-Xin Jiang ya Wan (1) and Yin Gui Wan (1), acupuncture (1), ayurvedic (1)
Leg vein circulation	3	-	3	1	2	-	-	-	Homeopathy (2), horse chestnut (1)
Dieting weight watching, losing weight	11	3	8	7	1	1	2	-	Slim herbal pill (1), slim nile (1) cider apple (2), herbal fat (1), herbal tea (1), fat metaboliser (1), chrom (1), ayurvedic (1), Chinese herbs (2), acupuncture (2), soy lecithin (1)
Gastrointestinal related	10								
Digestive aids,	4	1	3	-	2	1	1	-	Colonex (F,32 BR), herbal laxative-senna, cascara, alloin (1), regucol (1), lepicol (1), aloe vera (1)
Cleanser	4	2	2	1	2	1	-	-	Milk thistle (2) peppermint tea (1), green tea (1)
IBS	3	1	2	1	1	-	1	-	Chinese herbs (2), acupuncture (2), peppermint oil (1)
Skin problems Eczema, acne, skin problem	8	2	6	3	2	3	-	-	Flaxseed (2), starflower (1), Chinese herbs (3), acupuncture (3), personal formulated (1)
Water retention	5								Water balance (3), dandelion (1), apple cider (1)
Respiratory	5								
Flu	1	1	-	1	-	-	-	-	Echinacea (1)
Hay fever	2	-	2	-	1	1	-	-	Chinese herbs (1), acupuncture (1) Cannot remember name (1)
Sore throat	3	1	2	1	2	-	-	-	Ginger + lemon tea (1), homeopathy (1), Chinese herbs (1), acupuncture (1)
Sinusitis	1	-	1	-	1	-	-	-	Chinese herbs (1), acupuncture (1)
Cold	1	-	1	-	1	-	-	-	Cannot remember name (1)
Good health	4	2	2	2	-	-	-	2	Garlic (1), cod liver oil (2), herbal tea (1)
Smoking	3	2	1	1	2	-	-	-	Ayurvedic (1), acupuncture (2)
Hair loss, alopecia	3	3	-	-	2	1	-	-	Skin, hair, nails (1), Chinese herbs (2), acupuncture (2)
Malaria	1	1	-	-	1	-	-	-	African herb-dogonyaro (1)
Immune boost	1	-	1	-	1	-	-	-	Echinacea (1), Zinc (1)
Endocrine related	2								
Diabetes	1	1	-	-	1	-	-	-	Aloe Vera (1)
Thyroid	1	-	1	-	-	1	-	-	Kelp (1)
Brittle nail	1	-	1	-	-	-	1	-	Homeopath (1)
Low sperm count,	1	1	-	-	1	-	-	-	Chinese herbs (1), acupuncture (1),
Losing balance	1	1	-	-	-	-	1	-	Chinese herbs (1), acupuncture (1)
Ear infection	1	-	1	1	-	-	-	-	Almond oil (1)

6.1.1.4 Sources of recommendation of alternative medicine use

A friend, media and recommendation through self were the top three sources of recommendation of alternative medicine use to consumers (Figure 6.1.5). Non-healthcare professional sources of recommendation were more frequent than by a family member or other word of mouth. The least prevalent source of recommendation of use of alternative medicine was by a healthcare professional.



Sources of recommendation of alternative medicine use by consumers in health food and pharmacy shops
[a] Staff in health food shops and alternative medicine practitioners

Figure 6.1.5 Frequency distribution of the sources of recommendation of alternative medicine used by consumers

6.1.1.5 Disclosures of use of alternative medicine to healthcare professionals

Of the 130 consumers in this investigation, only five consumers reported communicating use of alternative medicine to a healthcare professional. Importantly, only one of the ten consumers using a herbal remedy or dietary supplement (HS) concurrently with conventional drugs had reported using a HS to a pharmacist (Section 6.1.3). In addition, none of the consumers who had

experienced a potential interaction had reported using a HS to a healthcare professional.

6.1.2 Consumers' attitudes to alternative medicine use

Among the consumers, the past effectiveness of alternative medicine came up as the most common reason for using alternative medicine (Figure 6.1.6.1). The reasons were also directly related to conventional medicine with lack of effectiveness of conventional medicine being the most common reason. However, according to the staff, consideration of safety was a more common reason than effectiveness for consumers preferring alternative medicine (Figure 6.1.6.2). On the other hand, both consumers and staff indicated that consumers sought more views about the safety than effectiveness of alternative medicine (Table 6.1.7). Similarly while consumers sought information on availability this was not a decisive factor in their decision to take alternative medicine. However, the availability of alternative medicine emerged in the response of the staff as being among the reasons that consumers use alternative medicine. The next most common reason was the recommendation of use of alternative medicine. Family and relatives were the sources of recommendations similar to the previous finding (Section 6.1.1.4). However, the media was one of the main reasons for using alternative medicine by consumers from the response of the staff. The background of the consumers was in this investigation a very importance influence for using alternative medicine among consumers that where non-British.

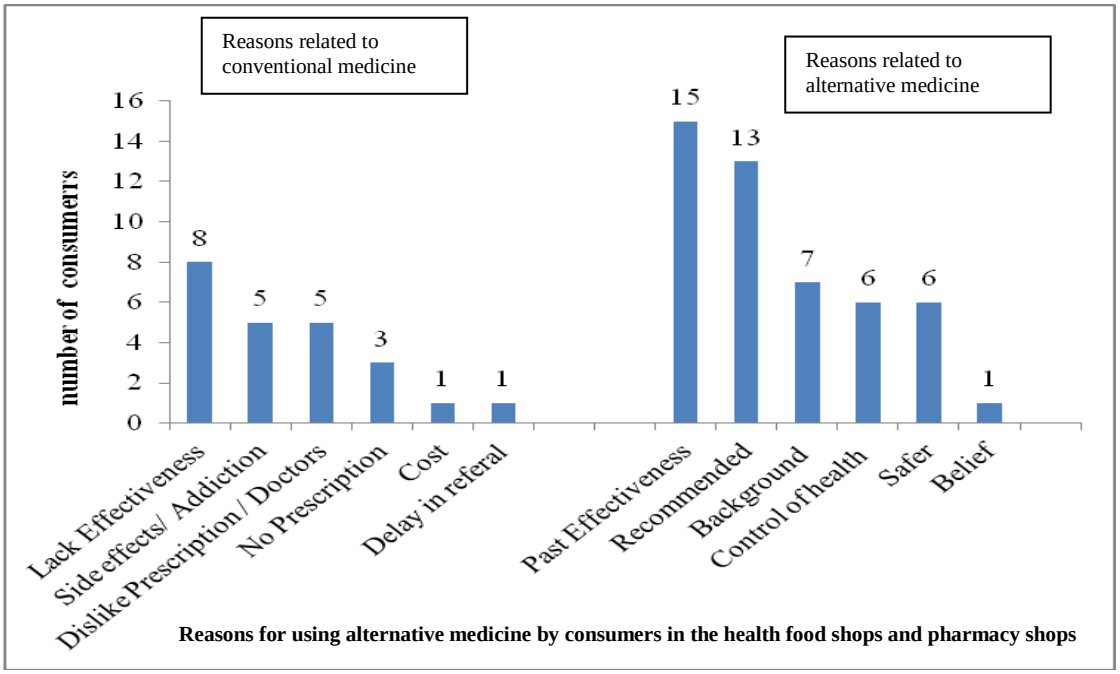


Figure 6.1.6.1 Frequency distribution of the reasons for using alternative medicine by consumers

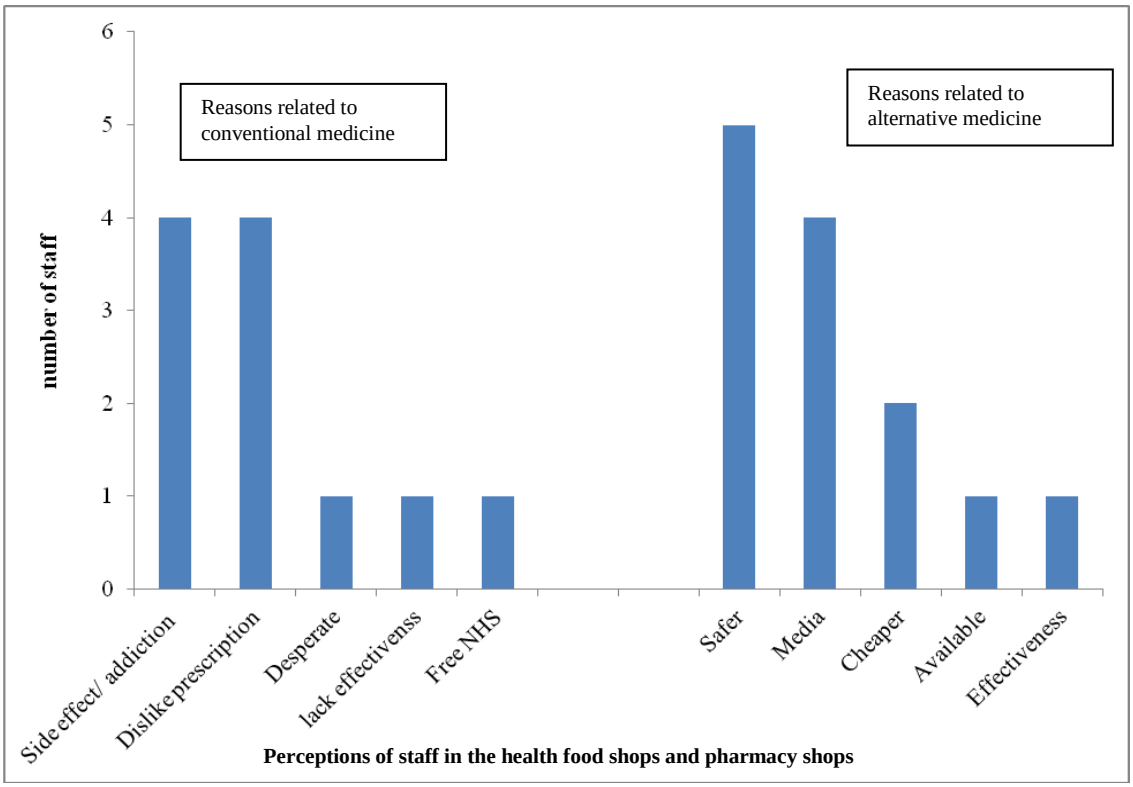


Figure 6.1.6.2 Frequency distribution of the perceptions of staff- reasons consumers use alternative medicine

Table 6.1.7 Views sought about alternative medicine by consumers and opinion of staff

Views sought about alternative medicine by consumers (number of consumers)	Response of staff about the views sought about alternative medicine by consumers (number of staff)
Safety issues (9) Side-effects, safety, regulation, producer, originality, regulation prevent potential overdose, standardised Effectiveness (3) result, what to expect from, monitor effects Administration dosage Indication (2) How it works, what it does, Research (3) Devote research, increase testing, developed Availability of alternative medicine (4) Generally, government, GP, hospital, active involvement and information, more use, advertising, awareness	Safety issues (15) Any side effects, can I take this if I am on medication from my doctor, can I take these if I suffer from e.g. high blood pressure/ Asthma etc. Indications/recommendation (10) What can you recommend for whatever illness Effectiveness (3) What benefits or efficacy, Direction and administration (5) How long can they take them how to take them, What ailment will they help with,

6.1.3 Incidence of possible adverse outcomes from alternative medicine used by consumers

Three incidences of potential interactions between a herbal remedy or dietary supplement (HS) used concurrently with conventional drugs were identified as having occurred from the report of 10 consumers (Table 6.1.8). All three cases were also possible interactions and not just theoretical in that at least one clinical case had been reported in the literature (Chapter 3, Section 3.4.3). The findings of the disclosure of use of alternative medicine by the consumer to a healthcare professional were reported in (Section 6.1.1.5).

Table 6.1.8 Incidence of potential interaction between herbal remedies or dietary supplement and conventional drugs used by consumers

Herbal remedy or dietary supplement (HS) used by consumers	**Concurrent conventional drugs used among ten consumers (n=number of consumers)**	**Potential interactions among** **[a] Documented clinical interactions**
Water balance, Glucosamine , Yin Gui Wan	**Thyroid drug (n=3)**	No, but risk of lithium toxicity with glucosamine
	Antidepressant (n=2)	
St John's Wort	Paroxetine	Sedation, mania and serotonin syndrome [a]
Flaxseed	Antidepressant	
	Analgesics (n=6)	
Chinese herbs	Dihydrocodeine	
Cod liver oil	Co – codamol	
Joint care product	Paracetamol	
Cod liver oil	Diclofenac	Antithrombotic effect, increases INR Cod liver oil increases of INR with high or changing doses. Case report of elevated INR when fish was added [a]
Water balance*	Diclofenac	
Chinese herbal pills	Diclofenac	
	Cardiac drugs (n = 3)	
Chinese herbal pills	Nebivolol	
Cardiocare (omega- 3 oil and garlic) Chinese herbs	High blood pressure drugs	May increase antihypertensive property. Garlic has been found in some studies to lower BP. [a] Garlic is reported to cause vasodilatation and blood pressure reduction.
Glucosamine	Digoxin	No, but risk of lithium toxicity with glucosamine
Kalms, St John's Bach & Soy lecithin Herbal teas, green tea, Dandelion	**No name (n =4)**	

[a] documented literature evidence of at least one case of clinical interactions

*Only consumer that reported using a HS to a healthcare professional

6.2 Investigation of Alternative Medicine Use by In-patients in the Secondary Healthcare Setting (Study 2)

Of the two hundred and forty in-patients in this investigation, almost all the in-patients were white British (98.8%) (Table 6.2.2.1). More than half were females (54.6%), above 60 years (53.3%) of age or having a college or related level of education (56.7%) (Tables 6.2.2.2-4). More than a quarter of the in-patients were on admission in one of three of the five specialty wards i.e., general medicine, general surgery or orthopaedics and trauma (Table 6.2.25). Most of the in-patients were on current admission in hospital for diseases of musculoskeletal system and connective tissue (Table 6.2.2.6). However the most common medical condition was disease of the digestive system which was the second highest reason for current admission. This study was carried out in the months of November 2008 to November in 2009 in a secondary healthcare setting within the Tyne and Wear region in the North East of England. The methods used for the study were presented in Chapter 3 and Chapter 5, Section 5.2.

6.2.1 Patterns of use of alternative medicine by in-patients

6.2.1.1 Prevalence of use of alternative medicine

Almost all in-patients (90.4%) had used at least one form of alternative medicine at some point in life (Table 6.2.1). More than one-third (91; 37.9%) of the 240 in-patients had used at least one alternative medicine within one month prior to the period of interview in hospital and about one-tenth (20; 8.3%) of the in-patients were using alternative medicine currently in hospital. Initially the prevalence of use of alternative medicine was 154 (64.4%) in-patients from the responses to Question 5 of the questionnaire (Appendix 3. p.251). However this increased considerably to 217 (90.4%) in-patients after combining responses obtained to the types of alternative medicine used and when used in Questions 15 and 16.

Table 6.2.1 Prevalence of use of alternative medicine among in-patients

Use of alternative medicine prior to interview	Prevalence of use of alternative medicine among in-patients		
	alternative medicine	Categories of alternative medicine	
		herbal remedies or dietary supplement	other forms of alternative medicine
	Frequency distribution of in-patients using alternative medicine (percentage within total number of 240 in-patients)		
At some point in life	217 (90.4)	210 (87.5)	174 (72.5)
within two years	179 (74.6)	153	90
within one year	165 (68.8)	136	74
within six months	151 (62.9)	120	61
within one month [b]	91 (37.9)	91	36
currently in hospital [a]	20 (8.3)	14	6

[a] = Use of alternative medicine in hospital during this current admission prior to the interview
[b] = Use of alternative medicine from four weeks before to the day of the current admission in hospital prior to interview

6.2.1.2 Demographic distribution of the in-patients using alternative medicine and relationship with use of alternative medicine

The in-patients were mainly of white British background (237; 98.8%) and the use of alternative medicine was highest (90.3%) as shown (Table 6.2.2.1). The remaining in-patients (3; 1.3%) were of Asian background and had all used at least one alternative medicine at some point in life. However, none of these three were currently using alternative medicine in hospital prior to the interview.

A higher number and percentage of female than male in-patients had used at least one form of alternative medicine in all the time of use reported in the finding of this investigation (Table 6.2.2.2). However the percentage of male in-patients was almost equal to female in-patients for those who had used alternative medicine within the past two years.

The number of the in-patients who had used alternative medicine increased with age and the highest use was among in-patients above 60 years old (Table 6.2.2.3), within the categorisation of age groups of the in-patients into three age groups in years. The percentage of the in-patients using alternative medicine also increased with age and the highest use was among in-patients above 60 years old. However the percentage of use of alternative medicine within six months, one year, two years and at some point in life declined with increase in age. A statistically significant association of p-value ≤ 0.05 was identified between the in-

patients age groups in years and use of alternative medicine within one year and two years. Given the categorisation of the in-patients age group into five age groups in years the highest number was among the in-patients in the age group 61-75 years. However, there was less consistency with the percentage and no statistically significant association of p-value ≤ 0.05.

The level of education of the in-patients was likewise initially categorized into five groups and then also pooled i.e. into fewer (three) categories (Tables 6.2.2.3 and 6.2.2.4). This was because most of the chi-square test results were invalid with the initial category with more than 20% of the cells having expected frequencies under 5 (Chapter 3, Section 3.4.1.2). A higher number of in-patients with college-related level of education had used alternative medicine (Table 6.2.2.4). However the percentage of in-patients using alternative medicine increased with increase in the level of education of the in-patients with use being highest among in-patients with a higher degree. A p-value ≤ 0.05 was identified between the in-patients' level of education and use of alternative medicine except for a near statistical significant association currently in hospital (p=0.098). Similarly the highest number of use of alternative medicine was among in-patients with college-related level of education and the percentage was consistently highest among those with undergraduate level of education in the categorisation of the age group of the in-patients into five age groups in years. This was except for those currently in hospital, but still the percentage of in-patients who had used alternative medicine was highest among in-patients with a post-graduate degree.

The number of in-patients using alternative medicine was highest in the general surgery ward (Table 6.2.2.5). This was apart from the number and percentage of in-patients using alternative medicine currently in hospital. This was slightly higher by one in-patient on the orthopaedics and trauma speciality. Also all the in-patients in the gynaecology and elderly speciality had used alternative medicine at some point in life. However, these were from extremely small sample sizes in the two latter specialities. Also, only one in-patient had been using alternative medicine in the elderly speciality and no in-patient had used alternative medicine in the gynaecology speciality in hospital prior to the interview. A statistically significant association of p-value ≤ 0.05 was identified between the speciality of the ward and use of alternative medicine at some point in life. A statistically significant

association of p-value ≤ than 0.05 was also found between use of alternative medicine with medical conditions of the digestive, respiratory system and mental behavioural disorder (Table 6.2.2.6). However, statistical association was with the disease of endocrine, nutritional and metabolic conditions and signs and symptoms involving cognition with respect to reasons for current admission.

Table 6.2.2.1 Frequency distributions and associations between background of in-patients and use of alternative medicine

Use of alternative medicine (AM) prior to interview	**Background (number of in-patients; percentage)**		p-value	Cramer's V
	British white (237 in-patients; 90.3%)	Asian (3 in-patients; 1.3%)		
	Frequency distribution of in-patients using alternative medicine (percentage within background)			
At some point in life	214 (90.3)	3 (100.0)	1.000[f]	0.037
Herbal remedies or dietary supplements	208 (87.8)	2 (66.7)	0.331[f]	0.071
Other forms of AM	171 (72.2)	3 (100.0)	0.563[f]	0.069
within two years	176 (74.3)	3 (100.0)	0.573[f]	0.066
within one year	162 (68.4)	3 (100.0)	0.554[f]	0.076
within six months	148 (624)	3 (100.0)	0.297[f]	0.086
within one month	89 (37.6)	2 (66.7)	0.559[f]	0.067
currently in hospital	20 (8.4)	0 (0.0)	1.000[f]	0.033

No statistically significant association of p-value ≤ 0.05 identified between ethnic background of tin-patients and use of alternative medicine with Fisher's exact ([f]) test and Cramer's V shows the strength of association

Table 6.2.2.2 Frequency distributions and associations between gender of in-patients and use of alternative medicine

Use of alternative medicine (AM) prior to interview	**Gender (number of in-patients; percentage)**		p-value	Cramer's V
	Male (109 in-patients; 45.4%)	Female (131 in-patients; 54.6%)		
	Frequency distribution of in-patients using alternative medicine (percentage within gender)			
At some point in life	96 (88.1)	121 (92.4)	0.2 61	0.073
Herbal remedies or supplements	92 (84.4)	118 (90.1)	0.186	0.085
Other forms of AM	77 (70.6)	97 (74.0)	0.557	0.038
within two years	81 (74.3)	98 (74.8)	0.930	0.006
within one year	72 (66.1)	93 (71.0)	0.411	0.053
within six months	67 (61.5)	84 (64.1)	0.672	0.027
within one month	39 (35.8)	52 (39.7)	0.534	0.040
currently in hospital	7(6.4)	13 (9.9)	0.328	0.063

No statistically significant association of p-value ≤ 0.05 identified between gender of in-patients and use of alternative medicine with chi-square test and Cramer's V shows the strength of the association

Table 6.2.2.3 Frequency distributions and associations between age groups of in-patients and use of alternative medicine

Use of alternative medicine (AM) prior to interview	**Age groups of in-patients in three age groups in years (number of in-patients; percentage)**			p-value	Cramer's V
	Less than 40 (32 in-patients; 13.3%)	40-60 (80 in-patients; 33.3%)	Above 60 (128 in-patients; 53.3%)		
	Frequency distribution of in-patients using alternative medicine (percentage within age-group)				
At some point in life	30 (93.8)	74 (92.5)	113 (88.3)	0.476	0.079
Herbal remedies or dietary supplements	29 (90.6)	72 (90.0)	109 (85.2)	0.500	0.076
Other forms of AM	26 (81.3)	61 (76.3)	87 (68.0)	0.211	0.114
within two years	29 (90.6)	61 (76.2)	89 (69.5)	0.045*	0.161
within one year	28 (87.5)	54 (67.5)	83 (64.8)	0.045*	0.161
within six months	25 (78.1)	48 (60.0)	78 (60.9)	0.159	0.124
within one month	10 (31.3)	27 (33.8)	54 (42.2)	0.335	0.095
currently in hospital	2 (6.3)	6 (7.5)	11 (9.4)	0.804	0.043

Use of alternative medicine (AM) prior to interview	**Age groups of in-patients in five age groups in years (number of in-patients; percentage)**					p-value	Cramer's V
	16-30 (16 in-patients; 6.7%)	31-45 (35 in-patients; 14.6%)	46-60 (62 in-patients; 25.8%)	61-75 (83 in-patients; 25.2%)	Above 75 (44 in-patients; 18.3%)		
	Frequency distribution of in-patients using alternative medicine (percentage within age-group)						
At some point in life	15 (93.8)	33 (94.3)	57 (91.1)	75 (90.4)	37 (84.1)		
Herbal remedies or dietary supplements	15 (93.8)	31 (88.6)	56 (90.3)	71 (85.5)	37 (84.1)	0.047*	(0.200)
Other forms of AM	15 (93.8)	27 (77.1)	45 (72.6)	62 (74.7)	25 (56.8)		
within two years	15 (93.8)	30 (85.7)	46 (74.2)	57 (68.7)	31 (70.5)		
within one year	14 (87.5)	29 (82.9)	40 (64.5)	53 (63.9)	29 (65.9)		
within six months	13 (81.3)	27 (61.4)	34 (54.8)	50 (60.2)	27 (61.4)		
within one month	6 (37.5)	14 (40.0)	17 (27.4)	39 (47.0)	15 (34.1)		
currently in hospital	1 (6.3)	3 (8.6)	4 (6.5)	8 (9.6)	4 (9.1)		

* Statistically significant association of p-value ≤ 0.05 between age groups of the in-patients in years and use of alternative medicine with chi-square test and Cramer's V shows strength of association

Table 6.2.2.4 Frequency distributions and associations between level of education of in-patients and use of alternative medicine

Use of alternative medicine (AM) prior to interview	**Level of education of in-patients in three groups (number of in-patients; percentage)**			p-value	Cramer's V
	None or Primary (68 in-patients; 28.3%)	College or related (136 in-patients; 56.7%)	Higher degree (36 in-patients; 15.0%)		
	Frequency distribution of in-patients using alternative medicine (percentage within level of education)				
At some point in life	55(80.9)	127(93.4)	35(97.2)	0.005[†*]	0.209
Herbal remedies or dietary supplements	55 (80.9)	121(89.0)	34 (94.4)	0.101	0.138
Other forms of AM	36 9 (52.9)	108 (79.4)	30 (83.3)	0.000[*]	0.277
within two years	39 (57.4)	111 (81.6)	29 (80.6)	0.001[*]	(0.249)
within one year	34 (50.0)	102 (75.0)	29 (80.6)	0.000[*]	(0.258)
within six months	30 (44.1)	93 (68.4)	28 (77.8)	0.000[*]	(0.245)
within one month	18 (26.5)	55 40.4)	18 (50.0)	0.041[*]	(0.163)
currently in hospital	3 (4.4)	11 (8.1)	6 (16.7)	0.098	(0.139)

Use of alternative medicine (AM) prior to interview	**Level of education of in-patients in five groups (number of in-patients; percentage)**					p-value	Cramer's V
	None (7 in-patients; 2.9%)	Primary (61 in-patients; 25.4%)	College or related (136 in-patients; 56.7%)	Undergraduate (24 in-patients; 10.0%)	Postgraduate (12 in-patients; 5.0%)		
	Frequency distribution of in-patients using alternative medicine (percentage) within level of education						
At some point in life	5 (71.4)	50 (82.0)	127 (93.4)	24 (100)	11 (91.7)		
Herbal remedies or dietary supplements	5 (71.4)	50 (82.0)	121 (89.0)	23 (95.8)	11 (91.7)		
Other forms of AM	2 (28.6)	34 (55.7)	108 (79.4)	20 (83.3)	10 (83.3)	0.000[*]	0.294
within two years	2 (28.6)	37 (60.7)	111 (81.6)	21 (87.5)	8 (66.7)	0.000[*]	0.290
within one year	1 (14.3)	33 (54.1)	102 (75.0)	21 (87.5)	8 (66.7)		
within six months	0 (0.0)	30 (49.2)	93 (68.4)	21 (87.5)	7 (58.3)		
within one month	0 (0.0)	18 (29.5)	55 (40.4)	13 (54.2)	5 (41.7)		
currently in hospital	0 (0.0)	3 (4.9)	11 (8.1)	2 (8.3)	4 (33.3)		

* Statistical significant association of p-value ≤ 0.05 between level of education of in-patients and use of alternative medicine with chi-square or Fisher's exact test and Cramer's V shows strength of association

Table 6.2.2.5 Frequency distributions and associations between speciality of admission of in-patients in hospital and use of alternative medicine

Use of alternative medicine (AM) prior to interview	**Speciality of admission of in-patients (numbers of in-patients; percentage)**					p-value	(Cramer's V)
	Orthopaedics & trauma (80 in-patients; 33.3%)	General surgery (72 in-patients; 30.0%)	Elderly (10 in-patients; 4.2%)	General medicine (70 in-patients; 29.2%)	Gynaecology (8 in-patients; 3.3%)		
	Frequency distribution of in-patients using alternative medicine (percentage within speciality)						
At some point in life	66 (82.5)	68 (94.4)	10 (100)	65 (92.9)	8 (100)	0.049*	0.199
Herbal remedies or dietary supplements	65 (81.3)	65 (90.3)	10 (100.0)	62 (88.6)	8 (100.0)	0.198	0.158
Other forms of AM	56 (70.0)	60 (83.3)	3 (30.3)	51 (72.9)	4 (50.0)	0.004*	0.255
within two years	56 (70.0)	59 (81.9)	6 (60.0)	53 (75.6)	5 (62.5)	0.316	0.104
within one year	53 (66.3)	53 (73.6)	5 (50.0)	49 (70.0)	5 (62.5)	0.582	0.109
within six months	48 (60.0)	52 (72.2)	5 (50.0)	41 (58.6)	5 (62.5)	0.374	0.133
within one month	29 (36.3)	33 (45.8)	2 (20.0)	24 (34.3)	3 (37.5)	0.438	0.125
Currently in hospital	8 (10.0)	7 (9.7)	1 (10.0)	4 (5.7)	0 (0.0)	0.761	0.088

* Statistical significant association of p-value ≤ 0.05 between speciality ward of current admission of in-patients and use of alternative medicine with chi-square test and Cramer's V shows strength

Table 6.2.2.6 Frequency distributions and associations between medical conditions of in-patients and use of alternative medicine

Use of alternative medicine prior to interview	Medical condition of inpatients	Number of in-patients	Frequency distribution of in-patients using alternative medicine (percentage)	p-value	Cramer's V
At some point in life	Digestive system	114	109 (95.6)	0.009*	0.168
	Endocrine, nutritional and metabolic	67	59 (88.1)	0.440	0.05
	Musculoskeletal and connective tissue	100	93 (93.0)	0.251	0.074
	Circulatory system	113	101 (89.4)	0.607	0.03
	Mental behavioural disorders	32	31 (96.9)	0.182	0.086
	Respiratory system	72	66 (91.7)	0.677	0.028
within two years	Endocrine, nutritional and metabolic		40 (59.7)	0.001*	0.213
	Musculoskeletal and connective tissue		79 (79.0)	0.184	0.086
	Digestive system		88 (77.2)	0.377	0.057
	Circulatory system		83 (73.5)	0.704	0.025
	Mental behavioural disorders		24 (75.5)	0.954	0.004
within one year	Endocrine, nutritional and metabolic		37 (55.2)	0.005*	0.182
	Respiratory system		43 (59.7)	0.048*	0.128
within six months	Endocrine, nutritional and metabolic		33 (49.3)	0.006	0.176
within one month	Digestive system		50 (43.9)	0.094	0.108
	Endocrine, nutritional and metabolic		16 (23.9)	0.004*	0.185
	Mental behavioural disorders		17 (53.1)	0.05 †*	0.119
	Musculoskeletal and connective tissue		44 (44.0)	0.127	0.099
	Circulatory system		44 (38.9)	0.856	0.012
	Respiratory system		27 (37.5)	0.862	0.011
Currently in hospital	Digestive system		13 (11.4)	0.102	0.106
	Musculoskeletal and connective tissue		10 (10.0)	0.430	0.051
	Endocrine, nutritional and metabolic		3 (4.5)	0.179	0.087
	Circulatory system		11 (9.7)	0.459	0.048
	Respiratory system		7 (9.7)	0.610	0.03
	Mental behavioural disorders		5 (15.6)	0.159†	0.103
	Reason for current admission in hospital				
At some point in life	Digestive system	54	52 (96.3)	0.095	0.108
	Musculoskeletal and connective tissue	62	56 (90.3)	0.977	0.002
	Endocrine, nutritional and metabolic	21	17 (8.7)	0.123	0.01
	Respiratory system	22	19 (86.4)	0.498†	0.024
	Circulatory system	35	30 (85.7)	0.307†	0.066
	Mental behavioural	32	12 (100)	0.247†	0.075
within two years	Endocrine, nutritional and metabolic		9 (42.9)	0.001*	0.226
within one year	Endocrine, nutritional and metabolic		8 (38.1)	0.002*	0.205
	Signs, perception, emotional state and behavioural		14 (87.5)	0.058	0.229
within one month	Endocrine, nutritional and metabolic		2 (9.5)	0.004*	0.183
	Musculoskeletal and connective tissue		25 (40.3)	0.708	0.204
	Signs and symptoms of cognition, perception, emotional and behavioural		10 (62.5)	0.008*	0.320
	Digestive system		26 (48.1)	0.092	0.109
	Mental behavioural		3 (25.0)	0.330†	0.063
	Respiratory system		8 (36.4)	0.842	0.013
	Circulatory system		11 (31.4)	0.363	0.059
Currently in hospital	Digestive system		6 (11.1)	0.402†	0.054
	Musculoskeletal and connective tissue		6 (9.7)	0.657	0.029
	Endocrine, nutritional and metabolic		1 (4.8)	0.535†	0.040
	Mental behavioural		1 (8.3)	1.000†	0.000
	Respiratory system		1 (4.8)	0.500†	0.044
	Circulatory system		2 (5.7)	0.544†	0.039

* Statistically significant association of p-value ≤ 0.05 between medical condition of in-patients and use of alternative medicine with chi-square or Fisher's exact (f) test and Cramer's V shows strength of association.

6.2.1.3 Prevalent types of alternative medicine used

The prevalence of herbal remedies and dietary supplements (HS) used was higher than other forms of alternative medicine among the in-patients (Table 6.2.1, Section 6.2.1.1). It was established that about fifty types of HS and fifteen other forms of alternative medicine had been used among the in-patients (Table 6.2.3.1). Glucosamine was the second most prevalent HS (74 in-patients) and after nutritional oil was the most prevalent type of alternative medicine (153 in-patients). However glucosamine was the most prevalent among the five HS used currently in hospital. Valerian products were the third most prevalent and, similarly to evening primrose, had also been used within one month of admission. Garlic was more used than evening primrose overall. However both were used to the same extent currently in hospital. Others used within one month of admission by more than one in-patient included aloe vera, echinacea, devils claw, brewer's yeast, kelp and milk thistle, with linseed being reported by two in-patients. In addition Chinese herbs like St John's Wort were among the top ten most prevalent herbal remedies or dietary supplements used. However, they were not used within one month of admission or currently in hospital. Massage was the most prevalent type of other forms of alternative medicine used (121 in-patients) and the second most used following aromatherapy, homeopathic remedies and copper band currently in hospital. Aromatherapy was the second most prevalent type (58 in-patients) and use was more popular than massage and homeopathic remedies within one month. Acupuncture, chiropracty, osteopathy and also homeopathic remedies were very popular but not used during the current admission and use was lower within one month. Also used within one month were reflexology, reiki, copper band and chakri.

The prevalent types of alternative medicine according to demography of the in-patients showed some differences (Tables 6.2.3.2-3). A higher use of evening primrose and the use of black cohosh with a statistically significant association was what might be expected for the female in-patients. Also it was reasonable because females were more prevalent users of alternative medicine, as indicated previously, than the male in-patients (Section 6.2.1.2). Valerian used by a more substantial number of female than male in-patients was also found with a statistically significant association. On the other hand nutritional oil was mostly

used by male in-patients and a statistically significant association was also found. Another important finding showing that male in-patients were frequently alternative medicine users was garlic being mostly used by male in-patients (a statistically significant association was also found). Other examples that seemed in keeping with the pattern included the use of kelp, Brewer's Yeast, milk thistle and rhubarb pill to a greater extent among the male in-patients. Glucosamine and other forms of alternative medicine like massage and acupuncture were found in this investigation to be used almost in similar numbers among the male and female in-patients. Also for example Chinese herbal medicine, St John's Wort, fever few Brewer's Yeast, milk thistle, black cohosh, valerian and other forms of alternative medicine, for example hypnotherapy and Alexander technique, were predominantly used by younger in-patients. On the other for example hand glucosamine, nutritional oil, massage and aromatherapy were used mostly by in-patients above 60 years old among the in-patients. Since the prevalence of use of alternative medicine was also higher in the general surgery it would be unsurprising that more of the types of alternative medicine used would be prevalent in the general surgery. However, differences were also seen. For example, higher use of nutritional oil, Alexander techniques and Bowen therapy in the orthopaedics and trauma specialty wards was observed.

Table 6.2.3.1 Prevalence of the types of alternative medicine used by in-patients

Prevalence of use at some point in life	Types of alternative medicine used by in-patients	Use of alternative medicine prior to interview							
		At some point in life	Currently in hospital	Within one month to day of admission in hospital	Within six month	Within one year	Within two years	Others above two years	[a] Cannot recall
	Herbal remedies or dietary supplements	Frequency distribution of in-patients =number of in-patients							
1	Nutritional oil	153	3	42	61	65	72	58	23
2	Glucosamine	74	8	31	35	44	52	15	7
3	Valerian products	65	0	10	12	16	24	20	21
4	Garlic	56	1	11	15	22	23	17	16
5	Evening primrose	55	1	10	14	21	22	26	7
6	Aloe Vera	32	0	1	8	11	12	8	12
7	Echinacea	26	0	4	4	10	10	11	5
8	St John's wort	23	0	0	1	1	1	16	5
9	Chinese herbs [a]	11	0	0	1	1	1	8	2
10	Devils claw	7	0	1	2	2	4	3	0
11	Black cohosh	5	0	0	0	1	1	5	0
12-14	Kelp	4	0	1	1	0	0	2	0
	Brewer's Yeast	4	0	3	3	3	3	3	0
	Fever few	4	0	0	1	1	1	3	0
15-16	Milk thistle	3	0	1	2	3	3	0	0
	Ginseng	3	0	0	0	0	1	0	2
17-22	Linseed	2	0	1	1	1	1	0	1
	Gingko biloba	2	0	0	0	1	2	0	0
	Aqua balm	2	0	0	0	0	0	1	1
	Adios sliming pill	2	0	0	0	0	2	0	0
	Munka honey	2	0	0	0	2	2	0	0
	Castor oil	2	0	0	0	0	0	1	1
23-50	Rhubarb pill	1	0	1	1	1	1	0	0
	Rose hip	1	0	1	1	1	1	0	0
	Spirulina	1	0	1	1	1	1	0	0
	Aniseed	1	0	1	1	1	1	0	0
	Acidophilus	1	0	0	1	1	1	0	0
	Liver 52	1	0	0	0	1	1	0	0
	New Zealand green mussel	1	0	0	0	0	0	1	0
	Herbal laxative califig	1	0	0	1	1	1	0	0
	Apple cider	1	0	0	0	0	0	1	0
	Clove oil	1	1	1	1	1	1	0	0
	Angus	1	0	0	0	0	0	1	0
	Oleobas oil	1	0	0	1	1	1	0	0
	Herbal pack	1	0	0	1	1	1	0	0
	Cannabis	1	0	0	0	0	0	1	0
	Capsaicin	1	0	1	1	1	1	0	0
	Creatine	1	0	0	0	0	0	1	0
	Doc leaves	1	0	0	0	0	0	1	0
	Medi nurse	1	0	0	0	0	0	1	0
	Malt	1	0	0	0	0	0	1	0
	Prostrate plus	1	0	0	0	1	1	0	0
	Puller bailey (Bach essence)	1	0	0	0	0	0	1	0
	Sea weed	1	0	0	0	0	0	1	0
	Isoflavone	1	0	0	0	0	0	1	0

	Glutamine	1	0	0	0	0	0	1	0
	Sage from salvia	1	0	0	0	0	0	1	0
	Phenmacare,	1	0	0	0	0	0	1	0
	Homemade remedies ginger and black pepper	1	0	0	0	0	0	1	0
	Indian ayurvedic	1	0	0	0	0	0	1	0
51	Not recall name [a]	18	0	0	1	3	5	6	7
	Other forms of alternative medicine	Frequency distribution of in-patients =number of in-patients							
1	Massage*	121	2	8	25	29	42	44	35
2	Aromatherapy	58	3	10	19	24	29	18	11
3	Acupuncture	46	0	3	6	11	22	23	1
4	Chiropractic	39	0	2	4	7	11	24	4
5	Osteopathy	34	0	1	2	3	5	25	4
6	Homeopathic remedies*	34	3	4	7	10	11	21	2
7	Reflexology*	35	0	3	7	8	13	13	9
8	Hypnotherapy	6	0	0	1	1	2	0	4
9	Alexander technique	3	0	0	0	0	0	1	2
10	Reiki	2	0	1	1	1	2	0	0
11	Copper band	2	1	2	2	2	2	0	0
12	Bowen therapy	2	0	0	0	0	2	0	0
13	Crystal therapy	1	0	0	0	0	1	0	0
14	Chakri	1	0	1	0	0	0	0	0
15	Thought field	1	0	0	0	0	0	1	0

[a] = in-patients could not recall name of type or time of use of alternative medicine used

*Statistically significant association of p-value ≤0.05 with chi-square or Fisher's exact test between demographic characteristics of in-patients and types of alternative medicine (Table 6.2.3.3).

Table 6.2.3.2 Characteristics of in-patients and types of alternative medicine used

Types of alternative medicine used by in-patients		Characteristics of in-patients														
		Background		Gender		Age groups in years			Level of education			Speciality wards				
Herbal remedies or dietary supplements	Total number	British white	Asian	Male	Female	Less than 40	40-60	Above 60	None or primary	College related	Higher degree	Orthopaedics & trauma	General Surgery	General Medicine	Elderly	Gynaecology
		Frequency distribution n=number of in-patients														
Nutritional oil	153	153[c]	0	81[c]	72[c]	17[c]	43[c]	93[c]	39[c]	87[c]	27[c]	49[b,c]	40[c]	51[c]	8	5[c]
Herbal tea	70	69	1	24	46	14	26	30	19	37	14	21	24	23	0	2
Dandelion	40	40	0	29	11	7	9	24	9	21	10	14[a]	14[a]	11	1	0
Soy	32	32	0	20	12	7	9	16	4	21	7	11	13	5	2	1
Glucosamine	74	74	0	35[b]	39	7	19	48	0	49	15	36	17	18	3	0
Valerian products	65	65	0	18	47	12	30	23	17	42	6	16	23	2	12[c]	2
Garlic	56	56	0	33	23	3	21	32	16	29	11	19	18[b]	14	3	5[c]
Evening primrose	55	53	2[c]	9	46	6	23	26	14	30	11	17	17	13	3	5[c]
Aloe Vera																
Echinacea	26	26	0	12[b]	14	7	9[b]	10	5	16	5	5	8	10	1	2
St John's Wort	23	23	0	7	16	2	15	6	8	8	7	5	7[a]	7[a]	1	1
Chinese herbs	11	11	0	5[a]	6	0	6	5[b]	2	7	2	2	2	7	0	0
Devils claw	7	6	1	0	7	0	4	3[b]	1	6	0	3	2	1	0	1
Black cohosh	5	5	0	0	5	1	3	1	1	3	1	2	1	1	0	1
Kelp	4	4	0	0	4	2	2	0	0	2	2	0	2[a]	2[a]	0	0
Brewer's Yeast	4	4	0	2[a]	2[a]	0	3	1	1	2	1	2	1	0	0	1
Fever few	4	4	0	1	3	0	3	1	2	1	1	0	2	2	0	0
Milk thistle	3	3	0	2	1	1	2	0	1	2	0	0	2	1	0	0
Ginseng	3	3	0	2	1	0	2	1	2	1	0	1[a]	1[a]	0	0	1
Linseed	2	2	0	0	2	0	0	2	0	2	0	1	0	0	1	0
Gingko biloba	2	2	0	0	2	0	0	2	0	2	0	1[a]	1[a]	0	0	0
Aqua balm	2	2	0	0	2	1	1	0	1	1	0	1	0	1	0	0
Adios sliming pill	2	2	0	0	2	1	0	1	1	1	0	1	0	1	0	0
Munka honey	2	2	0	0	2	1	0	1	1	1	0	1	0	1	0	0
Castor oil	2	2	0	0	2	0	1[a]	1[a]	0	1	1	1	0	0	0	1
Rhubarb pill	1	1	0	1	0	0	0	1	0	0	1	0	0	1	0	0
Rose hip	1	1	0	0	1	0	0	1	0	1	0	1	0	0	0	0
Spirulina	1	1	0	0	1	0	1	0	0	0	1	0	1	0	0	0
Aniseed	1	0	1	0	1	0	1	0	0	1	0	0	1	0	0	0
Acidophilus	1	1	0	1	0	0	1	0	0	1	0	0	1	0	0	0
Liver 52	1	1	0	1	0	0	1	0	0	1	0	1	0	0	0	0
New Zealand mussel	1	1	0	0	1	0	0	1	0	1	0	1	0	0	0	0
Herbal Califig	1	1	0	0	1	1	0	0	0	0	1	0	1	0	0	0
Apple cider	1	1	0	0	1	0	0	1	0	1	0	0	1	0	0	0
Clove oil	1	1	0	0	1	0	1	0	0	0	1	0	0	0	0	1
Angus	1	1	0	0	1	0	0	1	0	1	0	0	1	0	0	0
Oleobas oil	1	1	0	1	0	1	0	0	1	0	0	0	1	0	0	0
Herbal pack	1	1	0	0	1	0	1	0	0	1	0	0	0	0	0	1
Cannabis	1	0	1	0	1	0	1	0	0	1	0	0	1	0	0	0
Capsaicin	1	1	0	0	1	0	0	1	0	1	0	0	1	0	0	0
Creatine	1	1	0	0	1	0	1	0	0	0	1	0	0	0	0	1
Doc leaves	1	1	0	1	0	0	1	0	0	0	1	0	1	0	0	0
Medinurse	1	1	0	0	1	0	0	1	0	1	0	1	0	0	0	0
Malt	1	1	0	0	1	0	0	1	0	1	0	0	0	0	1	0
Prostrate plus	1	1	0	1	0	0	0	1	0	0	1	0	1	0	0	0

Types of alternative medicine used by in-patients		Characteristics of in-patients														
		Background		Gender		Age groups in years			Level of education			Speciality wards				
Herbal remedies or dietary supplements	Total number	British white	Asian	Male	Female	Less than 40	40-60	Above 60	None or primary	College related	Higher degree	Orthopaedics & trauma	General Surgery	General Medicine	Elderly	Gynaecology
Puller bailey	1	1	0	1	0	0	0	1	0	1	0	1	0	0	0	0
Sea weed	1	1	0	0	1	1	0	0	0	1	0	1	0	0	0	0
isoflavone	1	1	0	0	1	0	0	1	0	1	0	1	0	0	0	0
Glutamine	1	1	0	1	0	1	0	0	0	1	0	0	1	0	0	0
Sage from salvia	1	1	0	1	0	0	0	1	1	0	0	0	0	1	0	0
Phenmacare,	1	1	0	1	0	0	1	0	0	1	0	1	0	0	0	0
Homemade remedies	1	0	1	0	1	0	1	0	0	1	0	0	1	0	0	0
Indian ayurvedic	1	0	1	0	1	0	1	0	0	1	0	0	1	0	0	0
Other forms of alternative medicine																
Massage	121	119[c]	2[c]	60[b]	61	16[c]	46[c]	59[c]	21[c]	77[c]	23[c]	39[c]	40[c]	37[b,c]	2[c]	3[c]
Aromatherapy	58	58	0	23	35	14	20	24	15	32	11	15	20[a]	20[a]	1	2
Acupuncture	46	46	0	23[a]	23[a]	6	20[a]	20[a]	11	28	7	9	16	18	2[c]	1
Chiropractic	39	39	0	19[b]	20	2	13	24	6	26	7	19	6	13	0	1
Osteopathy	34	32	2[c]	16[b]	18	2	13	19	7	19	8	14	10	8	2[c]	0
Homeopathic	34	34	0	13	21	6	12	16	3	20	11	11	9	11	1	2
Reflexology	35	34	1	9	26	6	11	18	6	21	8	8	14	10	2[c]	1
Hypnotherapy	6	6	0	1	6	3	3	0	0	3	3	2	2	1	0	1
Alexander technique	3	3	0	2	1	0	2	1	0	1	2	1	0	1	0	0
Reiki	2	2	0	0	2	0	1	1	1	1	0	0	0	1	0	0
Copper band	2	2	0	0	2	0	2	0	2	0	0	2	0	0	0	0
Bowen therapy	2	2	0	2	0	0	2	0	0	2	0	2	0	0	0	0
Crystal therapy	1	1	0	0	1	0	1	0	0	1	0	0	1	0	0	0
Chakri	1	1	0	0	1	0	1	0	0	1	0	0	1	0	0	0
Thought field	1	1	0	0	1	1	0	0	0	0	1	0	0	1	0	0

[a] = same number of in-patients with highest number of in-patients within the characteristics of in-patients
[b] = almost similar number with the highest number of in-patients in the characteristics
[c] = alternative medicine used by the highest number of in-patient in this characteristics of in-patients
* = statistically significant association of p-value ≤ 0.05 with chi-square or Fisher's exact test between at least a characteristics of in-patients and type of alternative medicine (Table 6.2.3.3)

Table 6.2.3.3 Frequency distributions and associations between characteristics of in-patients and types of alternative medicine used

Types of alternative medicine used	**Characteristics of in-patients**			p-value
	Frequency distribution of in-patients using alternative medicine (percentage within characteristics of in-patients)			
	Gender			
	Male	Female		
Nutritional oil	81 (74.3)	73 (55.7)		0.003
Garlic	33 (30.3)	23 (17.6)		0.020
Devils claw	0 (0.0)	7 (5.3)		0.017 †
Black Cohosh	0 (0.0)	5 (3.8)		0.047 †
Evening primrose	9 (8.3)	46 (35.1)		0.000
Valerian (kalms)	10 (9.2)	34 (26.0)		0.001
Reflexology	9 (8.3)	26 (20)		0.011
	Age groups in years			
	Less than 40	40-60	above 60	
Nutritional oil	17 (53.1)	44 (55.0)	93 (72.7)	0.044
Valerian kalms	8 (25.0)	20 (25.0)	16 (12.5)	0.044
	Level of education			
	None or primary	College or related	Higher degree	
Massage	21 (30.9)	77 (56.6)	23 (63.9)	0.001
Homeopathy	3 (4.4)	20 (14.7)	11 (30.6)	0.001

Statistically significant association of p-value ≤ 0.05 between characteristics of in-patients and types of alternative medicine with chi-square or Fisher's exact (†) test

6.2.1.4 *Indications for using alternative medicine*

Shown in Table 6.2.4.1 are the indications for using alternative medicine by the in-patients mainly for musculoskeletal related problems followed by emotional related conditions. Both appeared to be similarly popular among the female in-patients (Table 6.2.4.2). The use of alternative medicine for musculoskeletal related conditions was still the most common reason for use, but with use for cardiovascular related conditions being higher among the male in-patients. Also, for example, more in-patients used alternative medicine for genitourinary, gastrointestinal, respiratory and circulatory conditions, among in-patients with a higher level of education and lower level of education. Older in-patients used alternative medicine for emotional and psychological related issues. The use of alternative medicine for musculoskeletal related conditions was more common among the older in-patients and there was higher use in the orthopaedics and trauma speciality. As would be expected, use for obstetrics and gynaecology were only in the gynaecology speciality and also did not occur in the elderly speciality. Other differences for example were that more in-patients in general medicine had used alternative medicine to boost immunity.

Table 6.2.4.1 Indications for using alternative medicine among in-patients

Indications for using alternative medicine (descriptions by the in-patients of indication and highlighted include those that are also reported used during the month and currently)	**Time of use**			**Speciality ward of admission: OT orthopaedic & trauma, GS general surgery, GM general medicine, E elderly, G gynaecology**					Types of alternative medicine used		
	At some point in life	Currently in hospital	Within one month	O & T	GS	GM	E	G	At some point in life	Currently in hospital	Within one month
	number of in-patients			number of in-patients					(number of in-patients)		
Musculoskeletal and connective tissue problems (Musculoskeletal, sciatica, vertebrae, arthritis, slipped disc, subtle joint, joint arthritis, problem, degeneration, mobility, muscles, bones, arthritis knee, back, hip problem rheumatism, leg numbness pins and needles)	146	9	45	50	46	44	3	3	Glucosamine (63), nutritional oil (52), chiropracty (38), massage (34), osteopathy (27), acupuncture (23), reflexology (7), aromatherapy (5), garlic, and homeopathy (4 each), devils claw, aloe vera (3 each), Chinese herbal medicine (2), Alexander technique (3), Bowen treatment echinacea, New Zealand green muscle like chamomile (can't remember name) Cannabis tea cherry active, arthrocare, apple cider, honey, MSM organic supplement (1 each)	Glucosamine (5) Nutritional oil (4)	Nutritional oil (17) Glucosamine (16) Osteopathy (1) Massage (1) Chiropracty (1)
Pain of any source (pain, joint ache, arthritis pain, aches, back, neck, shoulder, hip) apart from headache, migraine, labour	59	2	15	21	19	17	1	1	Acupuncture (11), glucosamine (10), massage (9), osteopathy (7), reflexology, nutritional oil (6 each), chiropracty, aromatherapy (4 each), Chinese herbal medicine, devils claw (3 each), copper band, ginger, black pepper, garlic, homeopathy, aloe vera, rose hip, cannabis tea, evening primrose, capsain, apple cider and honey (1 each)	Glucosamine (1) Homeopathy (1)	Nutritional oil (2) Glucosamine (2) Evening primrose (1) Devils claw (1) Rose hip (1) Capsain (1) Massage (2) Acupuncture (1) Chiropracty (1) Reflexology (1)
Mental , behavioural , emotional, psychological or nervous problems (depression, grief, phobia, stress, tension, anxiety- exams, driving, edgy, worry, relaxation (over heard procedure in hospital to be done), panics, tiredness, weepy, upset, lack of or help sleep or insomnia, sleep related relaxation, energy, memory, brain function, going or working)	121	2	23	30	43	37	3	8	Valerian products (43), massage and aromatherapy (33 each), St John's Wort(13), homeopathy (11), nutritional oil, herbal teas (6), acupuncture (5), evening primrose (4), echinacea, aloe Vera (3), Chinese, herbal medicine, reflexology, Brewer's Yeast, kelp, hypnotherapy (2 each), garlic, milk thistle, cannabis tea, ginseng, medinurse, gingko biloba, glucosamine reiki, copper band, (1 each), cannot remember (2)	Homeopathy (1) Copper band (1) Massage (1) Aromatherapy (1)	Valerian (10) Nutritional oil (4) Brewer's Yeast (1) Kelp (1) Aromatherapy (3)
Respiratory (respiratory treat, prevent cold, flu, sore throat, tonsillitis, asthma, nose congestion, bleeding nose)	49	1	5	11	18	14	3	3	Echinacea (16), nutritional oil (11), vitamins or mineral supplements (8), aromatherapy 6), homeopathy (3), evening primrose and Chinese herbal medicine (2), herbal teas, garlic, chiropractic, valerian product, lemonade hot water and ginger (homemade remedy) (1 each)	Garlic (1)	Nutritional oil (1) Evening primrose (1) Echinacea (1) Aromatherapy (1)
Skin (skin, healthy, dry skin, infections)	42		5						Aloe vera (24), evening primrose (8), nutritional oil, aromatherapy, Chinese herbs, acupuncture, echinacea, St john's wort, tea tree, dandelion & something else, fullers earth, homeopathy (1 each)		Evening primrose (3) Nutritional oil (2
Obstetrics and gynaecological (Menopausal, menstrual tension and irregular, nausea in pregnancy, thrush, cystitis, breast, UT, hormones, sore breast, lump in breast)	41		6	11	14	9	0	7	Evening primrose (26), black Cohosh (5), St John's wort, homeopathy (3), echinacea, nutritional oil, castor oil & orange, (2 each), nutritional oil (2), devils claw, reflexology, valerian product, soy, Bella something, not sure of name (1 each).		Evening primrose (3) Nutritional oil (2) Homeopathy (1)
Other injuries (sting, bruising, sport injury, burns)	38	2	3						Massage (11), homeopathy (8), aloe vera (7), osteopathy (4), aromatherapy, acupuncture, chiropractic, nutritional	Homeopathy (2)	Massage (1)

Indications for using alternative medicine (descriptions by the in-patients of indication and highlighted include those that are also reported used during the month and currently)	**Time of use**			**Speciality ward of admission: OT orthopaedic & trauma, GS general surgery, GM general medicine, E elderly, G gynaecology**					Types of alternative medicine used		
	At some point in life	Currently in hospital	Within one month	O & T	GS	GM	E	G	At some point in life	Currently in hospital	Within one month
	number of in-patients			number of in-patients					(number of in-patients)		
									oil, doc leaves (3), glucosamine, CHM, manuka honey, herbal no name (1 each)		
Gastrointestinal problems (digestion, IBS, bowel, constipation, reflux, nausea, vomiting or sick, food intolerance, gut flora)	27		10						Herbal teas (9), homeopathy (6), garlic, reflexology, nutritional oil, evening primrose , aloe vera, acupuncture (2 each), no name (4), linseed, aniseed (1 each)		Nutritional oil (2) Garlic (2) Evening primrose (1) Aloe vera (1) Linseed (1) Aniseed (1) Homeopathy (2)
Cardiovascular (circulation, for blood, heart)	23		7						Garlic (18), nutritional oil (4), reflexology, devils claw, evening primrose, rhubarb pills (1 each)		Garlic (4) Nutritional oil (3)
Boost immunity (boost, good for, enhance, build up, prior to hospitalisation)	14		4						Echinacea (7), nutritional oil (3), herbal teas, rhubarb pills (1 each)		Echinacea (3), Nutritional oil (1)
Headaches, migraine	10	2	3						Fever few (3), massage (2), acupuncture, aloe vera, aromatherapy, reflexology, homeopathy, copper band (2), ginger & black pepper (1)	Aromatherapy (1) Copper band (1)	Copper band (1)
Age related (getting old, old fellas,	10								evening primrose (4), glucosamine, nutritional oil (1 each)		Nutritional oil (1) Glucosamine (1) Evening primrose (1)
Feet related	8								Reflexology (7), massage (1)		
Detox (detox, cleanse liver, alcohol detoxification, clean blood prior to hospitalisation)	8								Herbal teas (4), milk thistle (2), massage, reflexology, garlic, liver 52,		Milk thistle (1)
Recovery (post mastectomy and other surgery, paralysis, stroke)	7		3						Evening primrose (2), reflexology, massage, glucosamine , nutritional oil (1 each)		Glucosamine (1) Evening primrose (1) Reflexology (1)
Anaemia	6		1						garlic (1)		
Inflammations	5								Homeopathy (2), nutritional oil rosehip oil glucosamine, evening primrose, CHM, remedial massage (1 each)		
Nails condition or growth	5		3						Evening primrose, nutritional oil (1)		Evening primrose (3)
Lose weight	5								Acupuncture (2), herbal teas and CHM (2 each), kelp, adios)		
Water retention	4								Oli- something, like a diuretic (both cannot remember proper name)- (1 each) aqua balm (2)		
Smoking cessation	4								Acupuncture (4)		
Hair (hair, greys)	3		2						Evening primrose (1), Brewer's Yeast (2)		Evening primrose (1) Brewer's Yeast (1)
Oral and dental problems (bleeding gum, tooth ache)	3								Massage. evening primrose, clove oil,	Clove oil (1)	Evening primrose (1)
Other genitourinary conditions (kidney stone, prostate enlargement)	3								Homeopathy, rhubarb pill, prostrate plus (1 each)		
Diagnosis	2								Massage and reflexology (1 each)		
Ear conditions	2								Nutritional oil (1), cannot remember name (1)		
Eye conditions	2								Homeopathy (2), reflexology (1)		
Alcohol dependency	2								Acupuncture and massage (1 each)		
Motion sickness	1								Valerian product (1)		
Balance	1		1						Chakri (1)		Chakri

Indications for using alternative medicine (descriptions by the in-patients of indication and highlighted include those that are also reported used during the month and currently)	**Time of use**			**Speciality ward of admission: OT orthopaedic & trauma, GS general surgery, GM general medicine, E elderly, G gynaecology**					Types of alternative medicine used		
	At some point in life	Currently in hospital	Within one month	O & T	GS	GM	E	G	At some point in life	Currently in hospital	Within one month
	number of in-patients			number of in-patients					(number of in-patients)		
Prior to surgery	1								Massage (1)		
Endocrine, nutritional and metabolic (Blood sugar)	1		1						Homeopath (1)		
Other no health reasons (pleasure, tension, calm, nice, pamper, volunteer in training in cancer ward or hospice, training, course related because it's there, just to try for experience, instead of caffeine in coffee, taste)	123		14						Massage (40), herbal teas (22), aloe vera (16), garlic, reflexology (13 each), nutritional oil (11), evening primrose (9), valerian product, aromatherapy, echinacea (7 each), St john's wort, glucosamine (6 each), devils claw, CHM, Sea weed (2 each), reiki, homeopathy (1)		Valerian (1) Massage (4) Aromatherapy (4) Reflexology (3) Reiki (2)
General health & wellbeing (prolong life, good for body, good health, wellbeing)	30	2	10						Nutritional oil (15), garlic (14), evening primrose (6), echinacea (2), glucosamine, aloe vera, acupuncture, evening primrose, Chinese sea weed, spirulina , massage can't remember name (1 each),	Nutritional oil (1) Garlic (1)	Nutritional oil (4) Garlic (2) Evening primrose (1) Spirulina (1)
Repellent mosquito, vampire, flies and others	6		2						Garlic (6),		Garlic (2)
Build weight	1								Creatine (1)		
Not specific (anything)	1		1						Acupuncture (1)		Acupuncture (1)

The in-patients used alternative medicine for a number of health related medical conditions and non-health related reasons. Similar indications reported by the in-patients were categorised together and grouping of similar indications was also guided by the WHO ICD classification, clinical knowledge and previous literature.

Shows the indications for use of alternative medicine also reported one month prior to and currently during admission in hospital among the in-patients

Table 6.2.4.2 Characteristic of in-patients and indications for using alternative medicine

Indications for using alternative medicine	**Frequency distribution of characteristics of in-patients**		
	Gender		
	Male	Female	
All other indications	lowest	Highest	
Anaemia	3	3	
Mental, behavioural, emotional Memory Sleep or insomnia Depression	50 4 15 4	71 4 26 18	
Cardiovascular, circulatory	16	7	
Musculoskeletal	75	71	
Injuries includes sports	22	16	
Oral and dental	2	1	
Other genitourinary problems	2	1	
Respiratory	19	30	
Skin problem	15	28	
Obstetrics & gynaecology	0	41	
	Age groups in years of in-patients		
	Less than 40 years	40-60	above 60 years
	Number of in-patients		
Other indications	lowest		Highest
Mental behavioural, emotional and psychological	21	52	48
Musculoskeletal	15	50	83
Headaches or migraine	0	9	2
Anaemia	1	3	2
Alcohol dependency	0	2	0
Hair	0	4	0
Building weight	1	0	0
Detox	4	4	0
Surgery recovery	0		
Diagnosis	0		

	Level of education of in-patients		
	None or primary	College or related	Higher degree
Other indications	lowest	highest	
Musculoskeletal	35	88	23
Mental behavioural, emotional and psychological	25	75	21
Genitourinary	0	0	3
Alcohol dependency	0	2	0
Balance	0	1	0
Endocrine, nutritional and metabolic (Blood sugar)	0	1	0
Hair	0	3	0
Nail condition or growth	0	5	0
Inflammation	0	6	0
Diagnosis	2	0	0
Ear conditions	2	0	0
Motion sickness	1	0	0

	Speciality ward of current admission of in-patients		
	Orthopaedics & trauma	General surgery	General medicine
Other indications	highest		
Mental, behavioural, emotional Anxiety		highest	
Respiratory Obstetric and gynaecological Anaemia include pre hospitalisation		highest	
Water retention Lose weight		highest	highest
Smoking cessation Others, no health reasons		highest	
Gastrointestinal Age related	highest	highest	
Boost immunity include pre hospitalisation			Highest

6.2.1.5 Sources of recommendation of alternative medicine use

The most frequent source of recommendation of alternative medicine use to in-patients was through friends (Figure 6.2.5). This was followed by relatives, media, and closely by self-recommendation, other word of mouth, with the least source of recommendation being through non-healthcare professionals. While there was a fairly even spread with no obvious reason for the minor differences, it could be seen that there was scope for healthcare professionals to be playing a bigger role.

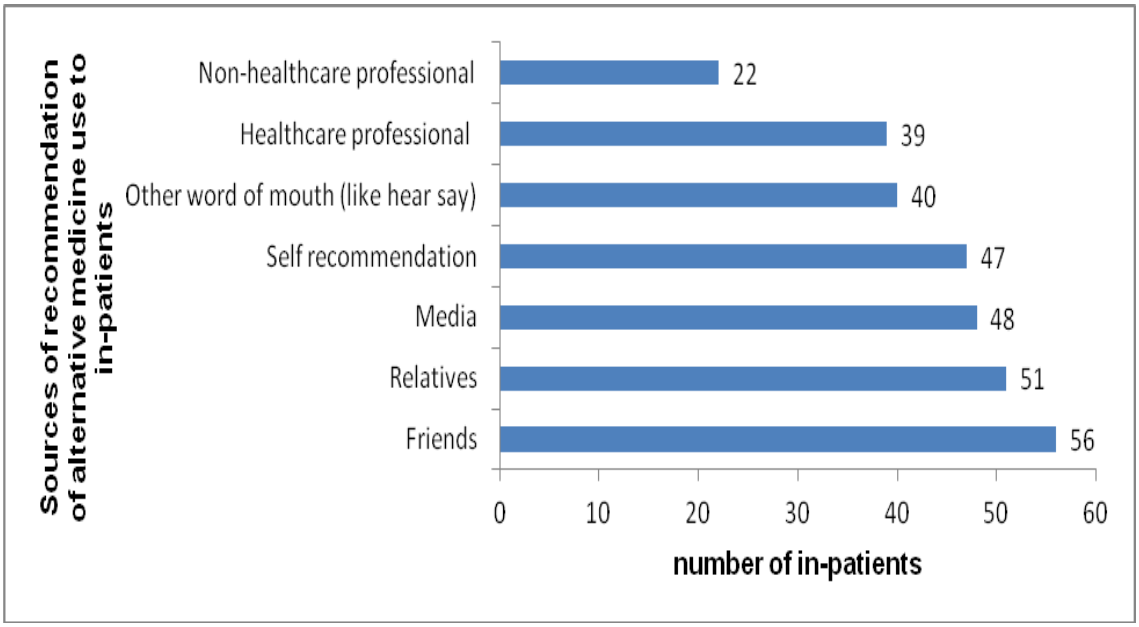


Figure 6.2.5 Frequency distribution of sources of recommendation of alternative medicine used by in-patients

6.2.1.6 Disclosure of use of alternative medicine in hospital to healthcare professionals

Only a very small proportion (26 out of 217) of the in-patients had disclosed using an alternative medicine to a healthcare professional during their current admission in hospital (Table 6.2.6.1). Only 19 of the 91 in-patients using alternative medicine within one month prior to admission and nine of the twenty in-patients using in hospital disclosed use to a healthcare professional presently at the hospital. The documentation of use of alternative medicine could not be confirmed for two of the in-patients using within the month prior to admission because their medical records could not be obtained. Six other in-patients disclosed use in the current

admission in the interview and had used alternative medicine six months to two years ago and one in-patient more than two years ago. This might have been the reason that documentation was not found in the current medical history).

Asking the in-patients about use of alternative medicine was most important for disclosure of use of alternative medicine (Table 6.2.6.2). This was also a very important factor but lower in priority for non-disclosure of use of alternative medicine to healthcare professionals among in-patients (Table 6.2.6.2). Another very striking finding was the issues surrounding the in-patients not considering alternative medicine as medicine. This was so much so that this was the most important reason for non-disclosure of use of alternative medicine. It was logical that routine drug history would be documented based on medication use currently at the time. However, that even among in-patients who had used alternative medicine within one month prior to admission in hospital this was considered to be a reason for non-disclosure. Whether or not patients had actually brought their alternative medicine into the hospital with them was an influencing factor on whether they reported disclosure or non-disclosure of use. It was one of the three reasons consistently given for disclosure, non-disclosure of use of alternative medicine, by in-patients who had used alternative medicine in the past, within one month prior to, in and the most important reason currently in admission among the in-patients. Concern about adverse effects of alternative medicine was the third of the three reasons. Other reasons such as not being on the list of medicine and disclosure during pre-assessment are important findings essential to this type of population. Volunteering use of alternative medicine to healthcare professionals when not asked apparently seemed peculiar. However important feature was that the in-patients who volunteered also reported good attitudes of healthcare professionals and an awareness of adverse outcomes.

The disclosure of use of alternative medicine was higher for females than for males. Taking males and females together, the highest groups were those above the age of 60 and those with college level of education (Table 6.2.6.1). Despite the higher number of disclosures for females, there was some indication that a higher number of male in-patients might feel more readily inclined to actually disclose use (Table 6.2.6.3). For example more of the male in-patients had volunteered that they had had use, considered alternative medicine as medicines and had

concerns of adverse effects. Interestingly, the investigation revealed that the in-patients who volunteered use of alternative medicine were among the in-patients with college level of education and the in-patients with no education or only primary education. The only in-patients who reported harmlessness of alternative medicine and fear of negative response were in-patients with a high degree level of education. The only in-patients who considered alternative medicine to be harmless and most of the in-patients who thought that it was not important to report its use were less than 40 years. Also more of the in-patients brought alternative medicine to the hospital among those in general surgery. However more in-patients had volunteered use in general medicine.

Table 6.2.6.1 Frequency distributions of associations between characteristics of in-patients and disclosure of use of alternative medicine in hospital

Disclosure of use of alternative medicine	**Use of Alternative medicine prior to interview in hospital**						
	At some point in life 217 in-patients	Within one month 91 in-patients	Currently in hospital				
	Frequency distribution (percentage)					p-value	Cramer's V
	26 (11.9)	19 (20.8)	9 (45)				
	Characteristics of in-patients						
	Ethnic background						
	White	Asian					
At some point in life	26	0 (0.0)				0.526[†]	0.042
within one month	19	0 (0.0)				0.463[†]	0.077
currently in hospital	9	0 (0.0)					
	Gender						
	Male	Female					
At some point in life	9 (9.0)	17 (13.8)				0.265	0.075
within one month	7 (17.9)	12 (23.1)				0.551	0.062
currently in hospital	1 (14.3)	8 (61.5)				0.070[†]	0.453
	Age group in years						
	Less than 40	40 – 60	above 60				
At some point in life	3 ((9.7)	4 (5.3)	19 (16.4)			0.059	0.159
within one month	1 (10.0)	3 (11.5)	15 (27.3)			0.178	0.195
currently in hospital	1 (50.0)	1 (14.3)	7 (63.6)			0.121[†]	0.460
	Level of Education						
	None or primary	College or related	Higher degree				
At some point in life	2 (3.2)	19 (15.0)	5 (14.7)			0.052	0.163
within one month	2 (11.1)	14 (25.5)	3 (16.7)			0.381	0.146
currently in hospital	1 (33.3)	6 (54.5)	2 (33.3)			0.638[†]	0.212
	Speciality wards of current admission						
	O&T	GS	GM	E	G		
At some point in life	14 (19.7)	9 (13.0)	3 (4.4)	0(0.0)	0 (0.0)	0.040*	0.212
within one month	12 (41.4)	5 (15.2)	2 (8.3)	0(0.0)	0(0.0)	0.020[†]	0.358
currently in hospital	5 (62.5)	3 (42.9)	1 (25.0)	1 (100.0)	0(0.0)	0.481[†]	0.351

* Statistically significant association of p-value less than 0.05 between characteristics of in-patients and disclosure of use of alternative medicine identified with chi-square or Fisher's exact ([†]) test and Cramer's V shows strength of association.
O&T=Orthopaedics and trauma, GS=General surgery, GM=General medicine, E=Elderly, G=Gynaecology

Table 6.2.6.2 Reasons for disclosure and non-disclosure of use of alternative medicine to healthcare professionals by the in-patients

Reason disclosure of use of alternative medicine	Total number of report among in-patients	In-patients using Alternative medicine within one month (19 in-patients)	In-patients using Alternative medicine currently in hospital (9 in-patients)
Asked specifically if taking by healthcare professionals	23	6	3
Willing to answer if taking alternative medicine	20	4	
Good attitudes of healthcare professionals [a]	7	6	
Approved to use alternative medicine	7		
Concerned about alternative medicine adverse effect	7	3	1
Brought all medicines and alternative medicine to hospital	6	6	5
Had alternative on list of medicines	6	5	
Volunteered use [b]	4	2	
Disclosed alternative medicine in pre-assessment	3	2	
Investigated by pharmacist	1	0	
Reasons for non-disclosure of use of alternative medicine			
Did not consider alternative medicine as medicine (such as not NHS, not prescription, over the counter, natural, not pharmaceuticals)	94	33	
Did not use alternative medicine currently	77	7	
Not asked specifically about alternative medicine	54	32	
Might mention if taking	12	4	
Did not bring it to hospital	9	6	
Confused and said 'no'	9	4	
Not important to report	7	4	
Health professionals were not interested in response	7	4	
Not given alternative medicine a thought	4	0	
Taking prescriptions or over-the-counter (OTC) medicines only	4	0	
Did not wish to disclose use	2	2	
Misunderstood the question	1	0	
Fear of negative impact (stop treatment)	1	1	
Thought of cultural bias towards alternative medicine	1	0	
Alternative medicine is harmless	1	1	

[a] = volunteered (2), aware of adverse reactions of alternative medicine-potential interactions (2), brought medicine to hospital (2), had on list (2), disclosure during pre-assessment (2)
[b] = Not asked specifically about use of alternative medicine, good attitude of healthcare professional (2), aware of adverse reactions of alternative medicine-potential interactions (2)

Table 6.2.6.3 Characteristics of in-patients and the reasons for disclosure of use of alternative medicine

Reasons for disclosure of use of alternative medicine	Frequency distribution of characteristics of in-patients				
	Gender of in-patients				
	Male	Female			
All other reasons	Lowest	Highest			
Concerned about alternative medicine adverse effect	4	3			
Disclosed alternative medicine in pre-assessment	2	1			
Volunteered use of alternative medicine	3	1			
satisfaction with conventional medicine	4	0			
Not asked specifically but assumed included alternative medicine	4	1			
	Background of in-patients				
	British white	Asian			
All reasons	Highest	0			
	Age group of in-patients in years				
	Less than 40	40 to 60	Above 60		
All other reasons	Second highest or lowest	Second highest or lowest	Highest		
Concerned about alternative medicine adverse effect	0	2	5		
Brought all medicines and alternative medicine to hospital	0	0	6		
Disclosed alternative medicine in pre-assessment	0	0	3		
Had alternative on list of medicines	0	0	6		
Good attitudes of healthcare professionals	0	0	7		
satisfaction with conventional medicine	1	0	3		
Not asked specifically but assumed included alternative medicine	1	4	2		
	Level of education of in-patients				
	None and primary	College or related	Higher degree		
All other reasons	Second highest or lowest	Highest	Second highest or lowest		
Disclosed alternative medicine in pre-assessment	0	3	0		
Volunteered use of alternative medicine	1	3	0		
Concerned about alternative medicine adverse effect	2	4	1		
	Speciality wards of current admission of in-patients				
	Orthopaedics & trauma	General surgery	General medicine	Elderly	Gynaecology
All other reasons	Highest	Second Highest	Third highest or none	None or lowest	None or lowest
Brought all medicines and alternative medicine to hospital	2	3	1	0	0
Volunteered use of alternative medicine	1	1	2	0	0
Disclosed alternative medicine in pre-assessment	3	0	0	0	0
Non-disclosure of use of alternative medicine	**Gender of in-patients**				
	Male	Female			
All other reasons	Lowest	Highest			
Did not consider alternative medicine as medicine	46	48			
Did not wish to disclose use	0	2			
Harmless	1	0			
Fear of negative impact (stop treatment)	0	1			
Taking prescriptions or over-the-counter (OTC) medicines only	3	1			
Not given alternative medicine a thought	0	4			
Might mention if taking	6	6			
	Ethnic background of in-patients				
	British white	Asian			
All other reasons	Highest	0			
Not asked specifically about alternative medicine	51	3			
	Age group of in-patient in years				
	Less than 40	40 to 60	Above 60		
Other reasons	Second highest or lowest	Second highest or lowest	Highest		
Did not bring it to hospital	1	4	4		
Did not wish to disclose use	0	1	1		
Harmless	1	0	0		
Fear of negative impact (stop treatment)	0	0	1		
Might mention if taking	3	6	3		
Not important to report	3	1	3		
	Level of education of in-patients				
	None and primary	College or related	Higher degree		
All other reasons	Second highest or lowest	Highest	Second highest or lowest		
Did not consider alternative medicine as medicine	25	43	25		
Did not bring it to hospital	2	7	0		
Did not wish to disclose use	1	0	1		
Harmless	0	0	1		
Fear of negative impact (stop treatment)	0	0	1		
Not given alternative medicine a thought	4	0	0		
Might mention if taking	4	4	4		
	Speciality wards of current admission of in-patients				
	Orthopaedics & trauma	General surgery	General medicine	Elderly	Gynaecology
All reasons	Highest	Second highest	Third highest or none	None or lowest	None or lowest
Did not bring it to hospital	3	0	0	0	0

6.2.2 In-patients' attitudes to alternative medicine

6.2.2.1 Reasons for using alternative medicine

The current findings showed that use of alternative medicine by the in-patients was most influenced by recommendation (Table 6.2.7.1). However, perception of effectiveness was the next main reason for use and most important reason for not using alternative medicine in this sample of in-patients. The failing in the effectiveness of conventional medicine (23 in-patients) was similarly important as with safety of alternative medicine. However, safety of alternative medicine was among the reasons for not using and was given among in-patients who had not used alternative medicine. Also, when all reasons regarding the safety of conventional medicine were combined it was found that more in-patients had concerns about safety of conventional medicine (32 in-patients). A commitment to alternative medicine was just slightly (24 in-patients) a more important reason for using alternative medicine. Similarly, commitment and satisfaction with conventional medicine were very important reasons for not using alternative medicine. It appeared to be the second most important reason for not using alternative medicine in this sample and was expressed among in-patients both who had use and who had not used alternative medicine. Although, the availability of alternative medicine was a less important reason for using alternative medicine, this was also evident as a reason for not using alternative medicine. Similarly, lack of availability of conventional medicine was another very important reason for use of alternative medicine. Not liking medications was less expressed than the aforementioned reasons for using alternative medicine. However it was also expressed as a reason for not using and was one of the few reasons from in-patients who had not used alternative medicine. Lack of knowledge of alternative medicine was also an important reason for not using alternative medicine by in-patients who used and had not used alternative medicine. However, not actually needing alternative medicine appeared to be most important reason for not using alternative medicine. It was expressed by the highest number of in-patients who had used and had not used alternative medicine. Most in-patients in this investigation had used at least one form of alternative medicine at some point in

life (217 in-patients) than non-users (23 in-patients) and so more of the reasons for using and not using alternative medicine were provided in the latter group.

The reasons for use of alternative medicine differed by the characteristics of the in-patients (Table 6.2.7.2). This current finding indicated that more male than female in-patients cited reasons related to availability of conventional medicine, most reasons for commitment to conventional medicine and that the male in-patients were more sceptical about alternative medicine and showed lack of knowledge of alternative medicine. Similarly, most of the reasons identified were provided among in-patients above 60 years. This was again like the female in-patients possibly because they were a larger sample in this investigation. However, it was reasonable that a higher number of in-patients of above 60 years mentioned dissatisfaction with conventional medicine (due to 'desperation, unresolved, prolonged or worsening conditions by fifteen out of the twenty responses) as a reason for trying alternative medicine. Hence, it could be a valid difference that the reason for use of alternative medicine by only in-patients of age group less than 40 was the of safety of alternative medicine, being 'natural'. A high number of in-patients of age 40 to 60 years were the same as in-patients above 60 years in that they thought about the apparent safety of alternative medicine. The findings showed that the in-patient age group of 40 to 60 years had experienced side-effects of alternative medicine and, similarly with less than 40 years, had more concern of safety of conventional. The same goes that the current findings therefore suggest differences within other characteristics of the in-patients. For example, other reasons for not using alternative medicine of having commitment to conventional medicine and no need for alternative medicine were most important among the in-patients with a lower level of education. Also, commitment to and satisfaction with conventional medicine were reasons for not using alternative medicine mostly in the general medicine ward.

Table 6.2.7.1 Reasons for use of alternative medicine given by in-patients

Reasons for using alternative medicine by in-patients (number of in-patients)	Reasons for non-use of alternative medicine (number of in-patients)
Related to Alternative Medicine **Recommendation (96)** Media, friends, relative, hear say, word of mouth (96) Personal recommendation or self-decisions (29) **Effectiveness (64)** Personal experience (45), others known (8), other word of mouth, hearsay (16), self-belief ((29) or expectations **Commitment (24)** First choice (16), Substitute to conventional medicine (8) **Safety (23)** Harmless, natural, manmade, non-chemical or toxin (12), Less harmful than conventional medicine (16) **Use of alternative medicine** Preventives (4), Enhance life style (6), Maintenance of health (8) Treatment (11): pain (arthritis, kidney infection), sleep, arthritis, tinnitus, bereavement, sport injury, cold **Availability, affordability (7)** No need for prescription, ease of access (5), Free, affordable, not expensive (2) **Age related (1)** **Occupation (2)** **Others** One formulation than other (2), will consider even though not used (6) Influences others (3) Related to conventional medicine **Safety (32)** Other concerns of adverse effects (15): Adverse reaction experience with conventional medicine (5, used alternative medicine to counteract adverse effect 1)), not want to use HRT (5), reduce taking medications (5), due to side-effect to condition cannot use conventional (pregnancy (1) Alternative medicine less harmful than conventional medicine (16) **Lack of effectiveness (23)** Failing to provide cure effective, desperation, unresolved, prolonged, worsening of condition (23) **Lack of availability (6)** Long waiting time for conventional, could not get appointment, or prescription (6), pregnancy (1) **Not liking doctors or medications (4)**	Related to Alternative Medicine **Not effective (12) [b]** **Lack of knowledge (11, (7) [b], (4) [c]) [a]** Lack of knowledge, ignorant, don't know what to do, how to go about, no knowledge **Not recommended (10, (9) [b], (1) [c]) [a]** **Not needed** Healthy (19, (16) [b], (3) [c]) [a], Not had need, never had reason, rise, thought about, considered (41(32) [b], (9) [c]) [a] **Choice** Not for the sake of just taking (2) [b], Not use as a first choice (1) [b], One formulation than other (2) [b], Type of medical condition (9) [b], Taking enough medicine (1) [b], Not better than conventional (1) [c], Medication taking (1) [b] **Safety (9)** Experience adverse drug reactions (7) [b], taking enough medicine (1) [b] Fear (1) [b] **Sceptical (5)** Sceptical, nonsense, not believe (5, (2) [b], (3) [c]) [a] **Affordability (5)** Expensive (5) [b] **Age related (1)[b]** **Occupation (1) [b]** Related to conventional medicine **Satisfaction** Satisfaction faith, trust with conventional medicine (21, (14) [b] (7) [c]) [a], Not better than conventional (1) [c] **Commitment** Chose to use or stick with conventional medicine (27, (20) [b], (7) [c]) [a] Not use as alternative a first choice to conventional (1) [b] **Others** Not want to mix with conventional medicine (1) [c] Taking enough medicine (1) [b] **Not liking medicine or medications in general (3, (2) [b], (1) [c]) [a]**

[a] = reasons for non-use of alternative medicine among both in-patients who had used and not used at some point in life; [b] = reasons for non-use of alternative medicine among inpatients who have used at some point in life; [c] = reason for non-use of Alternative medicine among inpatients who have not used alternative medicine at some point in life (Table 6.2.1, Section 6.2.1.1)

Table 6.2.7.2 Characteristics of in-patients and reasons for using alternative medicine (from Table 6.2.7.1)

Reasons for using and non-use of alternative medicine	**Frequency distribution of characteristics of in-patients**				
	Gender				
Reasons for using	Male	Female			
Other reasons for using	Lower or none	Highest			
Recommendation personal decision or self-decision	46 15	50 14			
Effectiveness of alternative medicine	25	39			
Preventive, maintenance, enhancement	8	7			
Availability, not expensive	2	0			
Non availability of conventional medicine	4	1			
Not like medication	2	2			
Occupation	1	1			
One formulation than other	1	1			
Reasons for non-use					
Safety of alternative medicine	1	8			
Sceptical, not believe	5	0			
Taking enough medicine	1	0			
Satisfaction with conventional medicine	10	1			
Commitment-chooses to conventional medicine	17	10			
Other choice, not just for sake of taking, not want to mix	2	0			
Non-availability of alternative- expensive	3	2			
Lack of knowledge of alternative medicine	8	3			
None effectiveness of alternative medicine	6	6			
	Ethnic back ground				
Reasons for use or non-use	British	Asian			
Commitment to alternative medicine No need for alternative medicine		2 3			
	Age group of in-patients in years				
Reasons for using	Less than 40	40-60	Above 60		
Other reasons Dissatisfaction with conventional medicine	Lowest or none 1	Second highest or none 7	Highest 15		
Safety of alternative medicine - Natural	5 5	9 0	9 0		
Safety of conventional medicine, concerns of safety	5	6	4		
Reasons for non-use					
Sceptical	1	0	4		
Safety of alternative medicine	0	9	1		
	Level of education of in-patients				
Reasons for using	None or primary	College or related	Higher degree		
Most reasons	Second highest	Highest	Lowest		
Availability	3	3	1		
Effectiveness of alternative medicine	11	41	13		
None availability of conventional medicine	1	4	1		
Reasons for non-use					
Availability of alternative medicine, expensive	1	3	1		
Lack of knowledge	6	3	2		
Commitment to conventional medicine	14	12	1		
Safety of alternative medicine	2	6	2		
Not like doctors or medication	2	1	0		
Sceptical of alternative medicine	0	3	2		
No need for alternative medicine	22	29	7		
	Speciality of admission of in-patients				
Reason for use	General surgery	General medicine	Orthopaedics & trauma	Elderly	Gynaecology
Other reasons	Second highest		Highest		
Availability of alternative medicine	1	3	3	0	0
Commitment to alternative medicine	6	4	9	1	4
Effectiveness of alternative medicine	21	11	25	5	2
Dissatisfaction with conventional medicine	5	9	7	1	1
Safety of alternative medicine	10	6	5	0	2
Safety of conventional medicine	5	3	5	0	2
Not like medication	1	1	1	0	1
Reason for non-use					
Availability of alternative, expensive	0	3	2	0	0
None effectiveness of alternative medicine	2	4	5	0	1
Lack of knowledge of alternative	3	4	3	0	1
Sceptical belief	1	2	2	0	0
Commitment to conventional Satisfaction with conventional medicine	7 3	9 8	9 9	2 1	0 0
Adverse reaction to alternative medicine	3	0	2	0	0
Not like doctors or medication	0	1	1	1	0

6.2.2.2 Consideration of future use of alternative medicine

About three-quarters (71.3%) of the in-patients would consider using alternative medicine in the future (Table 6.2.8.1). This was more than the number of in-patients who had used alternative medicine within two years prior to admission (Section 6.2.1.1). Furthermore there were as many in-patients who had used alternative medicine that would not consider use in the future as there were those who were uncertain.

The reasons for considering future use were similar to the previous finding of the reasons for use of alternative medicine. However, in contrast reverse effectiveness of alternative medicine was the main reason for considering future use before recommendation (Table 6.2.8.2). Also, having fewer personal experiences was a reason for consideration of future use of alternative medicine in comparison to the reason for use of alternative medicine previously reported. Another contrast was that the involvement of health professionals was the most important factor in the recommendation for consideration of future use. The safety of alternative medicine for consideration of use was also less important than effectiveness, as had been the case for reasons for use. However, fewer in-patients gave safety of alternative medicine as their reason for consideration of future use. Another difference was for example that the poor regulation of alternative medicine was part of the safety issues for not considering future use. Availability was less relevant than effectiveness and safety of alternative medicine or conventional medicine. The effectiveness of conventional medicine was also very common as a reason for future use. It was however by one in-patient than the number for safety of conventional medicine as a consideration for use of alternative medicine. The commitment to alternative medicine was also a major reason for considering future use of medicine, was ahead of both safety of alternative medicine and conventional medicine. Again commitment to conventional medicine appeared to be the most important shared reason for not considering future use of alternative medicine. However, the actual need for alternative medicine in this question was not just for not considering of future use of alternative medicine but also for considering alternative medicine. Also it appeared that knowledge turned out to be important for consideration of use not only by those who had not used alternative medicine similarly to the reasons for not using alternative medicine. It was

however by the in-patients who had used alternative medicine and for a number of in-patients, the safety of alternative medicine was more important than lack of knowledge for not considering future use, even though this was a very small disparity. Also other reasons, such as age and not liking medication for consideration of use were similar to reasons for use, probably due to older in-patients.

As opposed to the prevalence of use of alternative medicine, there were a slightly higher percentage of male in-patients than female who would consider future use of alternative medicine (Table 6.2.8.1). However, similarly to the reasons for using alternative medicine previously, the male in-patients tended to be showing more commitment to conventional medicine while the female in-patients tended to be more positive towards alternative medicine as being the reasons for considerations for using alternative medicine (Table 6.2.8.3). In addition, more of the male in-patients had more expectation of experience of effectiveness, recommendation by healthcare professionals and concern of safety of alternative medicine and higher number for life style. Similarly the consideration of use of alternative medicine in the future was higher among the oldest age group of in-patients. Also a statistically significant association of (p-value ≤ 0.05) was found between the age groups and consideration of future use of alternative medicine, thus giving greater credence to these differences (Table 6.2.8.1). A higher number of in-patients with college-related level of education would also consider using alternative medicine. The reasons for consideration of alternative medicine however might also provide understanding of the use of alternative medicine. For example a higher number of the in-patients with a higher level of education reasoned that there were fewer side-effects of alternative medicine compared to conventional medicine. This was interesting also in relation to those with lower education having more satisfaction with conventional medicine. Similarly to the prevalence of use of alternative medicine, despite there being more in-patients in the orthopaedics speciality in this investigation, a higher number of in-patients in general surgery would consider using alternative medicine in future. The higher number of in-patients in orthopaedics in the investigation possibly explains why the higher number for most reasons arises from this department. However, for example, a similar number of in-patients on general medicine and orthopaedics speciality, reasons were that they would consider it important to have knowledge

of alternative medicine before using it. Also in general surgery, while there were fewer in-patients with commitment to alternative medicine; the commitment to conventional medicine was fewer compared to the other two specialities.

Table 6.2.8.1 Frequency distributions and associations between consideration of future use of alternative medicine and the prevalence of use of alternative medicine and characteristics of in-patients

	Consideration of future use of alternative medicine				
	Frequency distribution of consideration of use of Alternative Medicine 238 (99.2%) in-patients			p-value	Cramer's V
Prevalence of use of alternative medicine, Table 5.2, Section 5.3.1.1	Yes 171 (71.3)	No 32 (13.3)	Do not Know 35 (13.4)		
	(percentage within prevalence of use of alternative medicine)				
At some point in life				0.001*[†]	0.220
Yes	162 (75.0)	25 (11.6)	29 (13.4)		
No	9 (40.9)	7 (31.8)	6 (27.3)		
Herbal remedies or dietary supplements				0.003 *[†]	0.195
Yes	157 (75.1)	24 (11.5)	28 (13.4)		
No	14 (48.3)	8 (27.6)	7 (24.1)		
Other forms of alternative medicine				0.000	0.263
Yes	136 (78.6)	15 (8.7)	22 (12.7)		
No	35 (53.8)	17 (26.2)	13 (20.0)		
Characteristics (number of in-patients, Table 5.2.1, Section 5.2.4)	(Percentage within characteristics of in-patients)				
Gender				0.785	0.045
Male (109 in-patients)	79 (73.1)	15 (13.9)	14) (13.0)		
Female (131 in-patients)	92 (70.8)	17 (13.1)	21 (16.2)		
Age group in years				0.004	0.218
Less than 40 (32 in-patients)	29 (90.6)	1 (3.1)	2 (6.3)		
40-60 (80 in-patients)	65 (82.3)	5 (6.3)	9 11.4)		
Above 60 (128 in-patients)	77 (60.6)	26 (20.5)	24 (18.9)		
Background				0.566 [†]	
White (217 in-patients)	169 (71.9)	32(100.0)	34 (97.1)		
Asian (3 in-patients)	2 (66.7)	0	1 (2.9)		
Level of education				0.591	0.077
None or Primary (68 in-patients)	45 (67.2)	9 (13.4)	13 19.4)		
College related (136 in-patients)	97 (71.9)	19 (14.1)	19 (14.1)		
Higher degree (36 in-patients)	29 (80.6)	4 (11.1)	3 (8.3)		
Speciality wards					
Orthopaedics (80 in-patients)	52 (65.8)	11 (13.9)	16 (20.3)		
General surgery (72 in-patients)	57 (79.2)	7 (9.7)	8 (11.1)		
Elderly (10 in-patients)	7 (70.0)	1 (10.0)	2 (20.0)		
General Medicine (70 in-patients)	48 (69.6)	13 (18.8)	8 (11.6)		
Gynaecology (8 in-patients)	7 (87.5)	0 (0.0)	1 (12.5)		

Statistically significant association p-value (less or equal) 0.05 with Chi-square or Fisher's [f] exact test and Cramer's' V shows strength of association. Do not know included other similar responses like unsure, uncertain or cannot say

Table 6.2.8.2 Reasons for consideration of future use of alternative medicine given by in-patients

Reasons for considering using alternative medicine in future by in-patients	Reasons in-patients would not consider using alternative medicine in future
Effectiveness (69) Benefit, help, good, effective, cure, belief (36, (6) [d]) [b], If proved effective ((8, (4) [d] (3) [n])) [b], treats whole body (3), tried and tested (5), faith healing (1), cost but effective (1), belief (3) Experience of effectiveness: Others known (2), health professional (1) [b], hearsay (2), personal experience (5, (2) [d]) **Recommended (35)** If healthcare professional recommends or prescribe (29, (5) [d], (1) [n]) [b], healthcare professional recommended use (1), healthcare professional approves to use (2) Offered, somebody, someone trust (6) Others known recommend (9 (2) [d]) (Knows others using (6, (1) [d]), alternative medicine practitioner (1) Self-recommended (2 (1) [d]) **Commitment to alternative medicine** As first choice [d], as supplement to conventional medicine Using currently but not in hospital (7), carry on use after discharge (20, (3) [d], if had in hospital would carry on use (1), using for long (1), habit (2), Self-recommended [b] (2), Will never stop (1), belief (3) **Safely and regulatory issues (11)** If no interaction with other medicine (2, (1) [d]), known to have potential interaction but not worried (1), harmless or less harm (9, (1) [d]), natural, normal pill, not manufactured (4) **Knowledge before use (16)** Actually checks (7, inform healthcare professional (4)), use with caution (6) Due to present condition (1) Would like to have knowledge before use (6) [b] **Availability (6)** Available as choice (6) **Lifestyle (1)** **Age requirement (2)** **Other situations or needs** If necessary, required, came to it (15, (3) [d]) [b], use or try anything (7, (1)[d]), use any time (2), would not dismiss, not against, will consider (21, (3) [d]) [b] Desperation, last resort (7), certain indications (17) [b], based on current (4, helps current condition (3) [d], depends on what for (2) [b], depends how or if bad (7) [d], health deteriorates (4, (2) [b, d]), type of alternative medicine (23, (3) [d], (2) [n]) Related to Conventional medicine practices (34) **Effectiveness** (If not effective (12, (4) [d], happy, desperation, last resort [b]) **Availability** No access to GP (1) [b], **Choice** Use instead of conventional medicine (20), use as supplement (7, not use alternative medicine alone) **Safety and regulatory issues (11)** Less side-effect, no side-effects, natural than conventional medicine (4) Adverse drug reactions (4), counter hospital experience (1) In and out of market (1), not perfect (1), **Needle phobia (1)**	**Non Effectiveness (16)** Not convinced (1), not believe (2) [a], things from soil (1), not effective (8, (4) [a]), would not help medical condition (4, (1) [y], (1) [a]) **Experiences** No experience (1) [a], others know (2), (1) [y]), personal (3, (1) [d]) **Recommendations (14)** Health shops (4) Hearsay or word of mouth (1) [y, a] Medical practitioner (1) [y] Advert (6 (2) [d], (2) [y] (5) [a]) Self-recommend (5, (3) [a, y]) **Safety and regulatory issue (7)** Concerns about adverse drug reactions (6, (5) [y], (1) [d]) [a] Regulatory and adverts issues (2, (2) [y], (1) [a]) Adverse reactions to medicines generally (1) Food interaction with condition (1) [y] **Lack of knowledge (5, (1) [y], (2) [d]) [a]** **Availability, exploitations (2)** Advert (1) [y], money (1) [d], other country (1) [y], health shops issues (3, (2) [y]), expensive (1) [a] **Life style, diet (4, (3) [a])** Can get from food (2) [y] Food interaction with condition (2, (1) [y]) Sceptical about vegetarian (1) [d] **Age limitation (6, (2) [d] (1) [y] (1) [a])** **Other situations or needs** Due to medical condition (11, (5) [y], (1) [d], (9) [a]) Healthy (2, (1) [y], (1) [d]) [a] Lives with problem (1) [d, a] Conditions would not (3) Would stop if not effective (2) [y, a] Not take medication unnecessarily (2 (1) [d]) [a,] leave things as they are (1) Taking plenty medicines (2, (1) [d]) [a], type of medication taking (5, (1) [y], (2) [d]) [a] **Choice of alternative medicine** Not alone, exclusively (4) [a], not as first choice (4) [a], not as preventives (1) [a], never considered, thoughts (3), Related to conventional medicine (29) **Commitment** Chooses or relies on, background, belief, better training, if had to choose, prefers medications (10 (2) [y], (2) [d], (7) [a]) **Satisfaction** Satisfaction, conventional practice, trust, faith, confidence (10, (3) [y], (8) [a]) **Effectiveness** Conventional not so alternative medicine would not (1) [a] **Experience** Adverse drug reactions (1) [a] Adverse drug reactions to medicines generally (1) [a] **Not like medications (1) [d]**

[d] = reasons would consider and not consider future use also by in-patients who do not know if would consider using; [n] = reasons would consider future use also by in-patients who would not consider using alternative medicine; [y] = reasons would not consider future use also by in-patients who would consider using alternative medicine (Table 6.2.8.1)
[b] = reasons would consider using in future also among in-patients who have not used alternative medicine at some point in life; [a] = reasons would not consider future use also among in-patients who have used alternative medicine at some point in life (Table 6.2.1, Section 6.2.1.1)

Table 6.2.8.3 Characteristics of in-patients and reasons to consider using alternative medicine in future (from Table 6.2.8.2)

Reasons to consider use and not consider use of alternative medicine in future	**Frequency distribution of characteristics of in-patients**		
	Gender		
Reasons would consider use of alternative medicine in future	Female	Male	
Other reasons	Higher or at least same	Lower or same	
Effectiveness - Benefit, help, good, effective, cure, belief; If proved effective	33 Lower	36 Higher	
Knowledge before use- use with caution	Lower	Higher	
Other situations or need, - certain indications - desperate, last resort health deteriorate; How bad; Types of alternative medicine - would not dismiss, not against, will consider	 5 lower 7	 12 higher 14	
Safety and regulatory issues of alternative medicine - harmless or less harmless - if no interactions with other medicine; natural known to have potential interaction but not worried	 4 0	 5 Higher	
Related to conventional medicine - Counter hospital experience - Less side-effect or no side-effect; Supplement or complement to conventional - Use instead of conventional medicine	 0 lower 10	 1 higher 10	
Commitment to alternative medicine - Carry on use after discharge; using currently but not in hospital - Using for long	 lower 0	 higher 1	
Recommended - If healthcare professional recommends or prescribe - Offered, somebody, someone trust - Healthcare professional recommended to use	 10 2 0	 19 4 1	
Availability- as choice	2	4	
Reasons would not consider use of alternative medicine in future			
Non-effectiveness	3	13	
Safety and regulatory issues of alternative medicine - Someone known adverse reactions; Regulatory and advert issues	 0	 Higher	
Situation or need - Would not help medical condition; Not use due to medical condition	 Lower	 Higher	
Availability, exploitation	0	2	
Recommendation - Hearsay or word of mouth - Health shops; Self-recommended	2 1 Lower	7 0 Higher	
Lack of knowledge	2	3	
Life style - Sceptical about vegetarian	0	1	
Choice never considered, thoughts; leave things as they are	 0	 3; 1	
Related to conventional medicine- Commitment; Satisfaction	Lower	Higher	
	Age group in years		
	Less than 40	40-60	Above 60
Most reasons for considering use of alternative medicine in future	Lowest	Second highest	Highest
Effectiveness Experience- others known Personal experience	 1 1	 0 1	 1 3
Other situation or needs- certain indications Use or try anything	Lowest 2	Same as above 60 2	Highest 3
Commitment - Using currently but not in hospital, carry on use after discharge	Second highest	Lowest	Highest
Other situation or needs - heath deteriorates - Desperation, last resort - Depends on how bad	 3 1 3	 1 0 0	 0 6 4
Related to conventional medicine Less side-effect or no side effect than conventional medicine	 1	 0	 3
Most reasons for considering use of alternative medicine in future	Lowest	Second highest	
Commitment to alternative medicine- - not as first choice	 2	 1	 1
Recommendation – not self-recommended	1	0	4
	Level of education		
	College or related	Higher degree	Primary and none
Most of other reasons for considering use of alternative medicine in future	Highest	Lowest	Second highest
Effectiveness- How it works, treat whole body, age requirement	second highest	Higher	0
Knowledge before use- inform or check with medical practitioner	0	2	2
Other situation or needs- will not be discouraged - certain indications, try anything - Depends on what for	1 higher 0	2 same 1	0 Same as higher degree 1

Reasons to consider use and not consider use of alternative medicine in future	**Frequency distribution of characteristics of in-patients**				
	Level of education				
	College or related	Higher degree		Primary or none	
- Depends on type of alternative medicine	11	7		5	
Related to conventional medicine					
Safety and regulation	5	5		2	
- Adverse drug reaction	0	3		1	
- Less side effects or no side-effects like conventional	1	3		0	
Needle phobia, counter hospital experience	0	1		0	
Recommendations					
- By medical practitioner	0	1		0	
- Someone known or trust	3	2		1	
- Knows others	0	0		6	
- Self-recommended	1	1		0	
Safety and regulator issues of alternative medicine	6	2		1	
- Known potential interaction but not worried	0	1		0	
Commitment to alternative medicine	19	10		7	
- Carry on use after discharge	11	5		4	
- Habit	1	1		0	
- Carry on use if had in hospital	0	1		0	
Reasons would not consider using alternative					
Related to conventional medicine					
Chooses or relies on conventional	4	3		3	
Satisfaction with conventional	2	2		6	
Safety and regulator issues of alternative medicine	6	2		1	
- someone knows had adverse reaction	0	1		0	
Other situation or needs					
- Healthy	0	1		0	
- Would not help condition	1	1		0	
- Choice					
Age limitation	2	1		3	
Availability- monitory exploitation	0	1		0	
Recommendation- advert	4	2		0	
Lack of knowledge	3	1		1	
Life style, dietary	1	2		1	
Non effectiveness-not believe any good	Same	Higher		Same as college	
	Speciality ward				
	Orthopaedics & trauma	General surgery	General medicine	Elderly	Gynaecology
Most reasons for considering use of alternative medicine in future	Highest or at least same as surgery	Second highest	Third highest	lowest	Lowest
Effectiveness of alternative medicine	24	20	20	4	1
Knowledge before use - Use with caution	5	3	6	2	0
Require and enquire knowledge					
Supplement or complement to conventional medicine					
Other situations or needs					
- Desperate, last resort	0	3	3	1	0
- How bad you	0	1	1	0	0
- using plenty of medication					
- use or try anything	3	1	3	0	0
- would not dismiss	6	2	11	1	1
- medical condition	0	0	3	0	0
Recommended	13	13	8	1	0
- Medical practitioner	0	0	1	0	0
Commitment to alternative medicine					
- Carry on use after discharge	8	5	9	1	0
Related to alternative medicine					
- Use as supplement to conventional medicine	1	3	3	0	1
Availability – choice	1	3	2	0	0
Most reasons for not considering use of alternative medicine in future	Highest or at least same as surgery	Second highest	Third highest		
Non effectiveness	6	5	5	0	0
Related to conventional medicine					
- Concerns of adverse reactions	2	1	3	0	0
- Chooses conventional medicine	4	3	3	0	0
Recommended- not self-recommended	2	2	0	1	0
Age limitation	0	1	4	1	0
Expensive, exploitation	0	1	0	1	0
Lack of knowledge	2	2	1	0	0
Other situation or need					
- never considered, thoughts	1	0	1	1	0

6.2.2.3 Views about alternative medicine

Table 6.2.9 Views about alternative medicine given by in-patients

Views about alternative medicine by in-patients
Effectiveness of alternative medicine (128) Personal experience ((45), benefit or effective (33, complete effective personal (3), personal experience not sure, can't say or don't (3), not effective (15) As long as effective, benefit, helpful or works (35) [c] value (10) [c], helpful (7) [c], some are effective (5), short term effective (3), available for long (3), better as preventives, drug companies won't be interested (2), media (1), placebo (1), tested and proven (2), mentally (psychological faith, religion (10), depends on individual (3) [c], depends on individual (choice, suitability, works, belief (25) [c], depends on type (17) [c] Hear-say or word of mouth benefit (21), medical practitioners impressed(1), others known benefit (14) [c] , Other reasons non effectiveness (14, lack of acceptance, others known (1)) Not experience ((3), opinion not used but not effective (2) [b], don't know or cannot say if effective (1))
Need for alternative medicine Consider use (75): Try anything (15) [c], anything is worth (2), medical condition (2), desperation no choice ((8)rather than be in pain, encouraged to use (15) [c], might not work but worth trying (2), no harm trying (1), for health 3, use healthy types (1), current use in hospital 1, current but not in hospital (1), where gets from, thought about (4) Cannot or would not use (68): Has no need for (30) [c], healthy (6) [c], has not tried (9) [c], adverse drug reactions, don't like medicines generally (4), bad experience conventional (3), due to conventional medication (3), due to medical condition (9), discouraged from use (1), don't take medicine except necessarily (2), experience inefficacy (1) uncertain proof of efficacy (2), nervous (1), lack confidence alternative and alternative medicine practitioner (1), not use alone (1), not influenced by others use or fanatics (2), would rather not anything (3), use only vitamin (2), healthy eating instead (1), not use animal part (1)
Safety of alternative medicine (69) Regulatory issues (32): legitimate (1), concerns of practitioners (qualification, won't go to a practitioner 3) (10)), like every other thing, insufficient research (7) [c], false claims (4) [c], too much advertising (3) [c], unscientific, unproven, test, quality regulation (13 (Regulation 9, quality standard 6)), Not harmful or less than conventional medicine (27)**:** others known used not harmful , less harm than CM (5), no side-effect like conventional medicine, not work but not harm (2), none chemical or drug (4), natural (7), personal experience (1) Harmful (18): Personal experience adverse reactions (5), concerns of adverse reaction (6) and interactions (7)
Knowledge (45) Lack of knowledge [b] Generally about alternative medicine (31, authenticity, knows nothing, not experienced or heard, potential interactions) [c], (Content, lacks knowledge or not know enough to say, research, not bought over the counter, what is available, rushing without knowing what to do, knows nothing about it , what can be managed through, younger age have knowledge than older) [b] Experience: Not having used (9 (not used at all (2) [b], not used much (4) [c], not thought about (7) [c], thought but not done anything (1) [c]), trying gives opinion (1) Seek guidance or knowledge before use of alternative medicine (8): Ask medical practitioner (5),authenticity, qualification (1), if came about sure should be explained (1), something you can look into and use (1), know what it does (1), watch hat is taking (1), Monitoring or caution in use (5) Sources of Knowledge: Provides information to others (8), External source includes Media: Read, newspaper, article, travelled (4) Personal experience (57) self-recommended (2)
Availability, access (31) Available alternative choice (5), in conventional setting, prescribed (2), believes prescribes now, no need for prescription (3), funding, use more now (2) [c], available in future (1), political (1), available for long (3), Cost related ((14), expensive (13) [c], not expensive (1), cheaper than conventional medicine [a] (1)
Recommendation (28) Recommended (28)
Comparison with conventional medicine (49) Similar to conventional medicine (23): Same or not better than conventional medicine (4) [c], conventional medicine also Trial and error (2) [c], antagonised by conventional setting (1) [b] , from alternative medicine (6), enhance treatment (2), use parallel with conventional medicine (use with treatment) [b] (23 (1) Preference for conventional medicine (28): Stick with or use conventional medicine (24) [c], prefer conventional ((4) , Doctors first/conventional first (2) [c] , free (1), takes only prescription (3) [c] , trust NHS (1)), not use instead of CM (6) Against conventional medicine (19): Dissatisfaction with conventional medicine ((19), adverse reaction (7), approach to treatment (2), bad experience (3), not effective (6) [c], unable to use (1), not like prescription (1), may not be enough (1)) Preference of alternative medicine in comparison to conventional medicine (19): Use alternative instead ((19 (gone off conventional (1), use before conventional (3), rather use over conventional (3), do not stick to normal medicine (1)), less harmful (5), cheaper (1), better (10), no need for prescription (3), taking a lot of prescription (1)
Acceptance of alternative medicine (81) Acceptance (61): Good (37), not dismiss (14), historical available (14), legitimate, undervalued, neglected, has a place (14), for long (12), religion (1)), not discredit (5), other significant body accept (royal family (2), other country (3), drug companies (1) c, health professional (3), as long as regulated, stock (1), conjunction with life style (2), times change (1), as long as work not how (1), Older age influences use (3), treats whole body (1), Lack of acceptance (21): Other significant body decline use (7) c, sceptical ((4), (science orientation and background) b) c, Crank (3), doubts (2), healthy eating instead (1), no good (2), not believe or trust (4) c, not fanatic about (1), antagonised by conventional setting (1)b , Drugs company not interested, over used(1)

[b] = views among in-patients who have not used alternative medicine at any point in life [c] = shared views among in-patients both who have not and who have used alternative medicine at some point in life

Similarly, effectiveness of alternative medicine was clearly the most important factor in in-patients' views about alternative medicine (Table 6.2.9). This was consistent with the previous finding of reasons for consideration for future use and similarly for using alternative medicine by the in-patients (Sections 6.2.2.1-2). Also, the most frequent link being to the personal experience was also linked to reasons for use of alternative medicine and the in-patients perceptions of effectiveness of alternative medicine (Section 6.2.2.4). The views about their regulation, policy and quality of practices of alternative medicine were also common reasons to what had been found for consideration for future use of alternative medicine and subsequent findings of the in-patients perceptions of alternative medicine. However views about recommendation were less than safety and possibly than its availability. The in-patients had also compared conventional medicine extensively with alternative medicine.

6.2.2.4 In-patients' perceptions of effectiveness of alternative medicine

The number (149; 63%) of the in-patients in this investigation who perceived that alternative medicine was effective was much higher than those (26; 11%) who did not think it was effective, even allowing for the fact that almost (87; 25 %) in-patients were uncertain (Table 6.2.10.1). This was further validated with a relationship of statistically significant association being found between the in-patients' perception of effectiveness and prevalence of use and consideration of future use of alternative medicine. This sample of in-patients also had a lower perception of effectiveness of herbal remedies or dietary supplements HS with higher uncertainty compared to other forms of alternative medicine.

Personal experience was the most common reason for the perceptions of effectiveness of alternative medicine among the in-patients (Table 6.2.10.2). This shows an agreement with reasons for use and views about alternative medicine (Section 6.2.2.1 and Section 6.2.2.2). External influence of knowledge was the next most relevant reason for perception of effectiveness of alternative medicine by in-patients, again showing consistency with the in-patients' reasons for use of alternative medicine and views. Similarly, findings on lack of knowledge were also consistent with previous findings. In addition the findings show this as the next most frequent reason among in-patients who were uncertain about the perception

of effectiveness of alternative medicine. Availability of alternative medicine was also another very important reason for perceptions of effectiveness. However, both groups of in-patients who had used and not used alternative medicine considered that availability of alternative medicine was a reason for effectiveness. The findings also showed that in-patients who perceived alternative medicine to be effective were more inclined to availability whilst in-patients who were uncertain (do not know) were more towards trial and error. There were other categories of response that were completely new with the perceptions of effectiveness. Trial and error was among the new category reported for perception of effectiveness of alternative medicine. The finding also showed comparison with conventional medicine as with other findings of attitudes to alternative medicine that were examined. In addition some in-patients were sceptical about effectiveness of conventional medicine. This was contrary to reasons for use and considerations of use that was more about the experience of lack of effectiveness. Again this emphasises the importance of including these contents in the reports of the main categories developed from the interviews of the in-patients.

The female in-patients had a higher perception of effectiveness of alternative medicine and statistically significant association was shown between gender and perceptions of effectiveness of alternative medicine (Table 6.2.10.1). Again, more male in-patients reasons included external knowledge effectiveness, comparison and commitment to conventional medicine, availability of alternative medicine (Table 6.2.10.2) similar to the reasons for using and consideration of use of alternative medicine (Section 6.2.2.1 and 6.2.2.2). The same was that although the in-patients above 60 years were more in the investigation and the higher perception of effectiveness of alternative medicine. However some differences in the reasons for perceptions of effectiveness were shown. For example the personal experience of effectiveness was second highest for those with a higher degree despite a higher number of in-patients and perception of effectiveness of alternative medicine among the in-patients with no or primary level of education. More distinctive was the lower number and none of in-patients with higher degree expressing certain reasons for perceptions of effectiveness of alternative medicine. Also there was a higher perception of effectiveness of alternative medicine in the general surgery followed closely by the in-patients in the orthopaedics and trauma wards that were more in the investigation.

Table 6.2.10.1 Frequency distributions and associations between in-patients perceptions of effectiveness of alternative medicine and the prevalence of use, consideration of future use of alternative medicine and characteristics

Prevalence of use of alternative medicine, Table 5.2, Section 5.3.1.1	**Perceptions of effectiveness of alternative medicine**				
	Frequency distribution of in-patients from 236 (98.33%) in-patients			p-value	Cramer's V
	Yes 149 (63.1)	No 26 (11.0)	Do not know 87 (25.8)		
At some point				0.019 *	0.183
Yes	141 (65.9)	21 (9.8)	52 (24.3)		
No	8 (36.4)	5 (22.7)	9 (40.9)		
Herbal remedies or dietary supplement				0.010 *	0.198
Yes	138 (66.7)	20 (9.7)	49 (23.7)		
No	11 (37.9)	6 (20.7)	12 (41.4)		
Other forms of alternative medicine				0.000 *	0.305
Yes	124 (72.1)	14 (8.1)	34 (19.8)		
No	25 (39.1)	12 (18.8)	27 (42.2)		
Consideration of future use of alternative medicine (number of in-patients Table 5.9.1.1)					
Yes (171 in-patients)	125 (83.9)	8 (30.8)	36 (59.0)	0.000 *	0.397
No (32 in-patients)	10 (6.7)	12 (46.2)	10 (16.4)		
Do not know (35 in-patients)	14 (9.4)	6 (23.1)	15 (24.6)		
Characteristics (number of in-patients, Table 5.1.1, Section 5.2.4)	(percentage within characteristics)				
Gender				0.020 *	0.182
Male (109 in-patients)	59 (55.1)	11 (10.3)	37 (34.6)		
Female (131 in-patients)	90 (69.8)	15 (11.6)	24 (18.6)		
Age group in years				0.008 *	0.172
Less than 40 (32 in-patients)	27 ((84.4)	2 (6.3)	3 (9.4)		
40–60 (80 in-patients)	55 (69.6)	9 (11.4)	15 (19.0)		
Above 60 (128 in-patients)	67 (53.6)	15(12.0)	43 (34.4)		
Level of education				0.849	0.054
None or primary (68 in-patients)	40 (60.6)	8 (12.1)	18 (27.3)		
College (136 in-patients)	85 (63.4)	13 (9.7)	36 (26.9)		
Higher degree (36 in-patients)	24 (66.7)	5 (13.9)	7 (19.4)		
Background				0.439 †	0.089
White British	148 (63.5)	25 (10.7)	60 (25.8)		
Asian	1 (33.3)	1 (33.3)	1 (33.3)		
Speciality wards				0.854	0.075
Orthopaedics & trauma (80 in-patients)	47 (59.5)	12 (15.2)	20 (25.3)		
General surgery (72 in-patients)	48 (66.7)	5 (6.9)	19 (26.4)		
Elderly (10 in-patients)	5 (62.5)	0	3 (37.5)		
General medicine (70 in-patients)	43 (62.3)	8 (11.6)	18 (26.1)		
Gynaecology (8 in-patients)	6 (75.0)	1 (12.5)	1 (12.5)		

* Statistically significant association p-value (less or equal) 0.05 with Chi-square or Fisher's [f] exact test and Cramer's' V shows strength of association. Do not know included other similar responses like unsure, uncertain or cannot say

Table 6.2.10.2 Reasons for in-patient s' perception of effectiveness of alternative medicine

Reasons for perception of effectiveness of alternative medicine (number of in-patients)	**Frequency distribution of in-patients perceptions of effectiveness , Table 6.2.10.1**		
	Yes	Do not know	No
Most reasons	**Highest**		
Personal experience (88)	**54**	**18**	**16**
Effective, benefit, worked, good, useful (60)	52	7	4
Not effective, benefit, work, good, useful (30)	7	7	16
Cannot say or don't know (14)	4	9	1
External Knowledge (81)	**50**	**22**	**9**
Effective:			
Hearsay, word of mouth (46, (4) [b])	30	13	3
others known (40, (4) [b])	25	11	4
medical practitioner (8)	5	3	0
media: magazine, read , internet (5)	4	1	0
Not effective (9):	1	3	5
hearsay (1)	0	1	0
others known (3)	0	2	1
read (1) [b]	0	0	1
Lack of knowledge (65)	**22**	**39**	**7**
AM itself (13):	6	5	2
how it works, content, information (11, (1) [b])	4	5	2
Not an expert or authority (3, (1) [b])	2	1	0
- **Personal experience (lack of no knowledge):**	**11**	**29**	**3**
not used any (27, (6) [b]),	7	20	0
not really used (many, much, long, recent) (11)	4	5	2
Not known anyone who used (4)	0	3	1
Availability- access (26) **(By people, business, country, royal) (26, (2) [b])**	**21**	**5**	**0**
Trial (11) **Trial and error or trust or chance (11, (2) [b])**	**5**	**6**	**0**
Belief	**24**	**7**	**7**
Negative belief (12, (1) [b]): sceptical, false claims, perceptions, not proven	4	3	5
Positive belief (9): natural, help quality of life, cure, proven	7	2	0
Compared with conventional medicine (28)	**18**	**7**	**3**
Compared effectiveness (15) :	8	5	2
Alternative medicine is effective as (5, (1) [b])	2	2	1
Alternative medicine not as but effective (4)	4	0	0
Alternative medicine not effective (2)	0	1	1
helps conventional medicine (2)	2	0	0
conventional medicine not proven (1)	0	1	0
Can't measure effectiveness like conventional (2)	0	1	1
Safety: less harmless than conventional (2)	1	1	0
Other measure of effectiveness			
Not measurable (5)	1	3	1
Are like all medicine (10, (2) [b])	9	1	0
Safety: not harmful but not effective (3, (1) [b])	0	0	3
Cost but effective (4, (1) [b])	2	2	0
Not 100 percent or complete full cure but useful (7)	6	0	1
Short term not long term (3),	3	0	0
Life style enhances effect (1)	1	0	0
Placebo (5, (1) [b])	1	3	1
Psychological, mentally, faith (16, (2) [b])	13	1	2
Factors determine effectiveness	**46**	**15**	**7**
some alternative medicine (21)	17	3	1
conditions or what is treated (5)	1	3	1
individual (32),	17	10	5
alternative medicine practitioner (1)	1	0	0
how used (7),	6	1	0
sometimes (sometimes, at times, some cases, certain situations) (16, (1) [b])	12	4	0

Table 6.2.10.3 Reasons for in-patients' perception of effectiveness of alternative medicine and characteristics of in-patients

Reasons for in-patients perception of effectiveness of alternative medicine from Table 6.2.10.2 above	**Frequency distribution of characteristics of in-patients**	
	Background	
	British	Asian
All reasons	**highest**	**Lowest**
Personal experience : Not effective, benefit, work, good, useful (30); Hearsay, word of mouth (46, (4) [b])		**1**
Personal experience (lack of no knowledge): not used any (27, (6) [b]); Not known anyone who used (4)		**1**
	Gender	
	Female	Male
Other reasons		
Personal experience		
Cannot say or don't know	Same	Same
External Knowledge		
Not effective:		
hearsay ; read	0	
Lack of knowledge		
how it works, content, information		
Availability- access (By people, business, country, royal		
Belief: Negative belief : sceptical, false claims, perceptions, not proven		
Compared with conventional medicine		
Compared effectiveness : Alternative medicine is effective as **;** Alternative medicine not as but effective **;** Alternative medicine not effective **;** conventional medicine not proven		
Can't measure effectiveness like conventional	Same	Same
Other measure of effectiveness: Not measurable (5)**;** Are like all medicine **;** Safety: not harmful but not effective **;** Placebo		
Psychological, mentally, faith	Same	Same
Factors determine effectiveness		

	Age group in years		
	Less than 40	40-60	Above 60
Other reasons	**lowest**		**Highest**
Personal experience			
Not effective, benefit, work, good, useful			
External Knowledge			
Not effective :			
hearsay	0		0
others known (3)	0		
Lack of knowledge			
AM itself : how it works, content, information			
Personal experience (lack of no knowledge:			
Not known anyone who used			
Belief			
Compared with conventional medicine			
Compared effectiveness:			
Alternative medicine not as but effective	0		0
helps conventional medicine			0
conventional medicine not proven	0		0
Can't measure effectiveness like conventional	0		
Safety: less harmless than conventional	0		0
Other measure of effectiveness			
Are like all medicine			
Short term not long term ; Life style enhances effect	0		0
Placebo	0		
Psychological, mentally, faith			
Factors determine effectiveness			
some alternative medicine			
conditions or what is treated,	0		
how used (7); sometimes (sometimes, at times, some cases, certain situations			

	Level of education		
	None or primary	College or related	Higher degree
Other reasons		**highest**	**Lowest**
Personal experience- Effective, benefit, worked, good, useful ; Cannot say or know			
External Knowledge			
medical practitioner			0
media: magazine, read , internet			
hearsay	0	0	
others known			
Lack of knowledge			
AM itself:			
how it works, content, information			
Not an expert or authority			
Trial			
Belief			
Negative belief : sceptical, false claims, perceptions, not proven			
Compared with conventional medicine			
Alternative medicine is effective as			
Alternative medicine not as but effective			
Alternative medicine not effective			0
helps conventional medicine	0		0

Reasons for in-patients perception of effectiveness of alternative medicine from Table 6.2.10.2 above	**Frequency distribution of characteristics of in-patients**				
	Level of education				
	None or primary		College or related		Higher degree
conventional medicine not proven			0		0
Can't measure effectiveness like conventional	0				
Safety: less harmless than conventional					0
Other measure of effectiveness					
Not measurable					
Are like all medicine (					
Safety: not harmful but not effective	0				
Cost but effective ; Not or complete full cure but useful ,					
Short term not long term ,			0		0
Life style enhances effect	0		0		1
Placebo (	0				
Factors determine effectiveness, Depends on					
some alternative medicine					
conditions or what is treated ; alternative medicine practitioner					
	Speciality				
	Orthopaedics & trauma	General Surgery	General medicine	Elderly	Gynaecology
Other reasons	**highest**	**most second highest**	**most third highest**	**lowest**	**or lowest**
Personal experience	**36**	**23**	**22**	**2**	**5**
Effective, benefit, worked, good, useful	23	17	14	2	4
Not effective, benefit, work, good, useful	11	7	8	0	4
Cannot say or don't know	6	6	2	0	0
External Knowledge	**26**	**29**	**23**	**0**	**3**
Effective:	25	27	23	0	3
Hearsay, word of mouth	15	15	14	0	2
others known	12	14	13	0	1
medical practitioner	3	4	1	0	0
media: magazine, read , internet	2	1	2	0	0
animal					
Not effective	5	4	0	0	0
hearsay	1	0	0	0	0
others known	1	2	0	0	0
Lack of knowledge	**23**	**21**	**19**	**4**	**1**
AM itself :	4	5	4	0	0
how it works, content, information	3	4	4	0	0
Not an expert or authority	1	1	1	0	0
- **Personal experience (lack of no knowledge):**	**15**	**11**	**10**	**4**	**1**
not used any	11	7	5	3	1
not really used (many, much, long, recent	4	3	4	0	0
Not known anyone who used	1	1	1	1	0
Availability- access	**10**	**7**	**7**	**2**	**0**
Trial (	**3**	**2**	**5**	**1**	**0**
Belief	**13**	**15**	**8**	**0**	**2**
Negative belief): sceptical, false claims, perceptions, not proven	5	4	3	0	0
Positive belief (9): natural, help quality of life, cure, proven	2	6	1	0	0
Compared with conventional medicine	**10**	**9**	**1**	**8**	**0**
Alternative medicine is effective as	3	1	1	0	0
Alternative medicine not as but effective	2	1	1	0	0
Alternative medicine not effective	0	0	2	0	0
helps conventional medicine	1	1	0	0	0
conventional medicine not proven	0	1	0	0	0
Can't measure effectiveness like conventional	1	1	0	0	0
Safety: less harmless than conventional	0	1	1	0	0
Other measure of effectiveness					
Not measurable	2	3	0	0	0
Are like all medicine	2	2	5	0	1
Safety: not harmful but not effective	2	1	0	0	0
Cost but effective	1	1	2	0	0
Not complete full cure but useful	3	3	1	0	0
Short term not long term	1	1	0	0	1
Life style enhances effect	0	0	1	0	0
Placebo	1	2	2	0	0
Psychological, mentally, faith	6	5	3	0	2
Factors determine effectiveness	**20**	**26**	**18**	**2**	**2**
Depends on					
some alternative medicine	6	9	6	0	0
conditions or what is treated	1	2	2	0	0
individual (32),	10	9	10	2	1
alternative medicine practitioner	0	0	1	0	0
how used	0	4	2	0	1
sometimes (sometimes, at times, some cases, certain situations	5	7	4	0	0

Frequency distribution of in-patients
Highest
second highest
Lowest

6.2.2.5 In-patients' perceptions of side-effect of alternative medicine

More than half (136; 57.6%) of the in-patients had a perception of side-effects or harmfulness of alternative medicine (Table 6.2.11.1). This was less influential than their perception of effectiveness for use of alternative medicine (Section 6.2.2.4). The other in-patients either had no perceptions or were uncertain of side-effects of alternative medicine. This was a similar finding to the prevalence of use and consideration of future use of alternative medicine among the in-patients, albeit there was a lack of a statistical significant association with prevalence of use of alternative medicine. However a statistically significant association between the in-patients perception of side-effects and consideration of future use of alternative medicine was found.

Also personal experience of the side-effects was not the most common reason for perception of side-effects (Table 6.2.11.2). This was in contrast to the finding of the in-patients' perception of effectiveness. However this was reassuringly an essential reason for the in-patients who had no perception of side-effect of alternative medicine. While, in addition, in-patients who had experienced side-effect reactions mainly had a perception of side-effect. On the other hand some with the experience were still uncertain about the perception of side-effects of alternative medicine. Also the in-patients perception of side-effects was very much influenced by external sources and lack of knowledge. However it appeared both had the same level of influence on the in-patients perceptions of side-effects. The availability of alternative medicine with trial and error was similarly a new category. However, there were more in-patients that seemed to relate perceptions of side-effect with trial and error. Also, more of the in-patients also compared the reason for perception of side-effects of alternative medicine with conventional medicine. These included in-patients who used alternative medicine and those who had not used alternative medicine. Interestingly, a very high number of in-patients who perceived side-effects of alternative medicine, like those who had no perception of side-effects, thought alternative medicine were safer or less harmful than conventional medicine. This was important in that it underlined the complexity of and again multiplicity of the reasons for the in-patients perceptions of side-effects. However detailed discussion is not possible with every category found and even those that were with just one in-patient may not be irrelevant.

The female in-patients also had higher perceptions of side-effects with a statistically significant association being found (Table 6.2.11.1). However, this number was just slightly higher and there was a higher percentage of perceptions of side-effects among the male in-patients. However reasons like lack of knowledge and trial and trust and uncertainty of perception of side-effects, and availability of alternative medicine also frequently occurred among the male in-patients (Table 6.2.11.3). Similarly the number of in-patients could be the reason for the higher number of perceptions of side-effects among the in-patients with college related level of education. However, there were also differences such as fewer in-patients with a higher degree having reasons related to availability, trial and trust of alternative medicine. Also those with a higher level of education came up with reasons that side-effects of alternative medicine were rare. The in-patients with a higher level of education were also more aware of side-effects. Also there was a higher percentage in the perception of side-effects and higher number for the perception of side-effects increasing with the age group of the in-patients. On the other hand the lowest percentage with perception of side-effects was among the in-patients of 40-60 years.

Table 6.2.11.1 Frequency distributions and associations between in-patients perceptions of side-effect or harmfulness of alternative medicine and the prevalence of use, consideration of future use of alternative medicine and characteristics of in-patients

Prevalence of use of alternative medicine, Table 5.2, Section 5.3.1.1	**Perception of side-effect or harmfulness of alternative medicine** Frequency distribution of in-patients 236 (98.33%) Yes 136 (57.6)	No 51 (21.6)	Do not know 49 (20.8)	p-value	Cramer's V
At some point in life				0.759 †	0.020
Yes	124 (57.9)	46 (21.5)	44 (20.6)		
No	12 (54.5)	5 (22.7)	5 (22.7)		
Herbal remedies or dietary supplements				0.586	0.067
Yes	120 (58.0)	46 (22.2)	41 (19.8)		
No	16 (55.2)	5 (17.2)	8 (27.6)		
Other forms of alternative medicine				0.151	0.127
Yes	100 (58.1)	41 (23.8)	31 (18.0)		
No	36 (56.3)	10 (15.6)	18 (28.1)		
Consideration of future use (number of in-patients, Table 5.9.1.1)					
Yes (171 in-patients)	97 (71.3)	43 (84.3)	29 (59.2)	0.033*	0.149
No (25 in-patients)	18 (13.2)	2 (3.9)	12 (24.5)		
Do not know (29 in-patients)	21 (15.4)	6 (11.8)	8 (16.3)		
Characteristics (number of in-patients, Table 5.1.1, Section 5.2.4)	(percentage within characteristics)				
Gender				0.048*	0.160
Male	64 (59.8)	16 (15.0)	27 (25.2)		
Female	72 (55.8)	35 (27.1)	22 (17.1)		
Age group in years				0.688	0.069
Less than 40	19 (59.4)	8 (25.0)	5 (15.6)		
40–60	41 (51.9)	19 (24.1)	19 (24.1)		
Above 60	76 (60.8)	24 (19.2)	25 (20.0)		
Level of education				0.939	0.041
None or primary	37 (56.1)	16 (24.2)	13 (19.7)		
College	77 (57.5)	29 ((21.6)	28 (20.9)		
Higher degree	22 (61.1)	6 (16.7)	8 (22.2)		
Background				0.075 †	0.143 †
White British	136 (57.4)	49 (21.0)	48 (20.6)		
Asian	0	2 (66.7)	1 (33.3)		
Speciality wards				1000 †	
Orthopaedics and trauma	46 (58.2)	16 (20.3)	17 (21.5)		
General surgery	41 (56.9)	16 (22.2)	15 (20.8)		
Elderly	6 (75.0)	1 (12.5)	1 (12.5)		
General medicine	39 (56.5)	15 (21.7)	15 (21.7)		
Gynaecology	4 (50.0)	3 (37.5)	1 (12.5)		

* Statistically significant association p-value (less or equal) 0.05 with Chi-square or Fisher's † exact test and Cramer's' V shows strength of association. "Do not know" included other similar responses like "unsure", "uncertain" or "cannot say"

Table 6.2.11.2 Reasons for in-patients' perceptions of side-effects of alternative medicine

Reasons for perception of side-effect of alternative medicine	Frequency distribution of in-patents perception of side-effects Table 6.2.11.1		
	Yes	Don't know	No
Most reasons	Highest		
External knowledge (34)	17	8	7
Side-effect (14, 1 [b])	12	2	2
No side-effect (12)	2	4	6
Types used by others (3)	2	1	0
Source about alternative medicine	1	1	0
Word of mouth (1 [b])	1	0	0
Lack of knowledge (32)	21	5	6
No experience or less(13)	2	10	1
Knows no one used (1 [b])	1	0	0
Not think about it, no comment (2)	0	2	0
Not used (7)	0	2	1
Not used that much or not a regular user (7)	1	6	0
Should enquire (14)	10	3	1
Personal experience (30)	9	3	18
Personal experience side-effects	5	1	2
Personal experience no side-effect	4	2	16
Not used (3)			
See also compare effectiveness			
Trial and trust (11)	8	2	1
Conventional medicine based on trial and error	2	0	0
Does trial and error with both conventional and alternative medicine	1	0	0
Trial and error or trust	7	2	1
Weights benefits and risk of am before using			
Availability (11)	7	0	4
Around for long, conventional from alternative (5, 2 [b])	2	0	3
Available to public promoted, broadcasted so should be safe (11, 2 [b])	7	0	4
Other country influence (3, 1 [b])	2	0	1
Shops (1)	1	0	0
Used long, past (1)	0	0	1
Availability not equal safety (1)	1	0	0
Comparing effectiveness (15)	9	4	2
Effective (13, 1 [b])	7	4	2
Not effective (2)	2	0	0
Not help but not harmful (2, 1 [b])	2	0	0
Factors determining, depends on	64	4	8
Action of alternative medicine itself (4)	4	0	0
Alternative practitioner bad, inexperienced, not qualified (5)	4	0	1
Depend on individual (38, 4 [b])	35	1	2
How used (19, 1 [b])	17	2	2
Depends on type of alternative (20, 1 [b])	18	0	2
Regulatory and other standardisation (6, 2 [b])	3	2	1
Type of condition (1)	1	0	0
Food and other allergy (3)	3	0	0
Health status (2)	0	1	1
Measurement of side-effects	75	3	11
All or any medicines can side-effect (35, 3 [b])	33	2	0
Anything, everything can have side-effect (17)	17	0	0
Psychological (1)	1	0	0
Compared to conventional less harm (35)	29	1	5
Like conventional medicine too can have side-effect (21, 1 [b])	21	0	0
Possible interaction if used in combination with conventional (3)	3	0	0
Undecided whether less side-effect than conventional medicine	1	0	0
Rare, not life threatening (20, 1 [b])	13	1	6
Medication choice, commitment to conventional medicine, to alternative medicine	11	6	3
Choice of medicine based on individual (1)	0	1	0
Chooses conventional medicine and sticks to it (3)	2	1	0
Does not take medicine unnecessarily (1)	0	1	0
Never used alternative medicine but then says has used (3)	0	2	1
Taking lots of tablets (1)	1	0	0
Use alternative medicine instead of conventional medicine (4)	3	1	0
Weight the benefits and or risk of alternative medicine (6)	4	1	1
Would consider alternative medicine use (3)	1	1	1
Comparison with conventional medicine, see also measurement	40	5	10
Alternative around for long, conventional from alternative medicine (5, 2 [b])	2	0	3
Aware of alternative side-effect because of conventional medicine (1)	1	0	0
Chooses conventional medicine and sticks to it (3)	2	1	0
Conventional medicine trial and error (2)	2	0	0
Experience of side-effect to conventional medicine (8)	5	1	2
Information available and involvement or medical practitioner (10)	8	1	1
Does trial and error with both conventional and alternative medicine (1)	1	0	0
Safe, not, less harmful, compared to conventional medicine (35, 2 [b])	29	1	5
Thalidomide (1)	1	0	0
Regulation no side-effects (6, 2 [b])	3	0	3

Table 6.2.11.3 Reasons for in-patients' perception of side-effects of alternative medicine and characteristics of in-patients

Reasons for perception of side-effect of alternative medicine	Frequency distribution of characteristics of in-patients		
	Background		
	White	Asian	
All reasons	highest	lowest	
External knowledge		1	
No side-effect		1	
Lack of knowledge			
No experience or less		1	
Medication choice, commitment to conventional medicine, to alternative medicine: Would consider alternative medicine use		1	
	Gender		
	Male	Female	
Others reasons	**lowest**	**highest**	
External knowledge	**14**	**18**	
No side-effect			
Source about alternative medicine			
Word of mouth	1	0	
Lack of knowledge: No experience or less; Not think about it, no comment ; Not used that much or not a regular user			
Trial and trust (11), see also comparison conventional medicine	**6**	**5**	
Conventional medicine based on trial and error; Weights benefits and risk of am before using			
Does trial and error with both conventional and alternative medicine		0	
Trial and error or trust			
Availability	**5**	**6**	
Shops; Used long, past; Availability not equal safety		0	
Comparing effectiveness	**7**	**8**	
Not effective			
Not help but not harmful		0	
Factors determining, depends on; Depend on individual			
Alternative practitioner bad, inexperienced, not qualified; How used; Depends on type of alternative; Food and other allergy			
Measurement of side-effects	**42**	**47**	
Anything, everything can have side-effect; Compared to conventional less harm; Rare, not life threatening; Like conventional medicine too can have side-effect			
Psychological	1	0	
Medication choice, commitment to conventional medicine, to alternative medicine	**7**	**13**	
Chooses conventional medicine and sticks to it	3	0	
Weight the benefits and or risk of alternative medicine			
Comparison with conventional medicine, see also measurement	**28**	**27**	
Chooses conventional medicine and sticks to it; Does trial and error with both conventional and alternative medicine		0	
Conventional medicine trial and error; Experience of side-effect to conventional medicine; Information available and involvement or medical practitioner			
Safe, not, less harmful, compared to conventional medicine	**19**	**16**	
Thalidomide (1), Regulation no side-effects			
	Age group in years		
	40-60	Above 60	Less than 40
Other reasons	second highest	highest	lowest
External knowledge	13	18	3
Side-effect	4	11	3
No side-effect	8	4	0
Source about alternative medicine	0	2	0
Word of mouth	0	1	0
Lack of knowledge	9	18	5
No experience or less	7	4	2
Knows no one used	0	1	0
Not used	2	0	1
Not used that much or not a regular user	4	2	1
Personal experience	12	16	2
Personal experience side-effects	5	2	1
Trial and trust	3	7	1
Conventional medicine based on trial and error	0	2	0
Does trial and error with both conventional and alternative medicine	0	1	0
Availability	3	7	1
Shops	0	0	1
Used long, past	0	1	0
Availability not equal safety	0	0	1
Comparing effectiveness	4	11	0
Not effective	0	2	0
Not help but not harmful	2	0	0
Factors determining, depends on	24	40	12
Action of alternative medicine itself	1	2	1
Alternative practitioner bad, inexperienced, not qualified	3	2	0
Measurement of side-effects	25	46	20
All or any medicines can side-effect	6	22	7

Reasons for perception of side-effect of alternative medicine	**Frequency distribution of characteristics of in-patients**		
	Age group in years		
	40-60	Above 60	Less than 40
Anything, everything can have side-effect	8	4	5
Psychological	1	0	0
Possible interaction if used in combination with conventional	2	1	0
Undecided whether less side-effect than conventional medicine	0	1	0
Rare, not life threatening	4	11	7
Medication choice, commitment to conventional medicine, to alternative medicine	8	10	2
Choice of medicine based on individual	1	0	0
Chooses conventional medicine and sticks to it	0	2	1
Does not take medicine unnecessarily	1	0	0
Taking lots of tablets	0	1	0
Use alternative medicine instead of conventional medicine	2	1	1
Would consider alternative medicine use	2	1	0
Comparison with conventional medicine, see also measurement	15	32	8
Aware of alternative side-effect because of conventional medicine	1	0	0
Chooses conventional medicine and sticks to it	0	2	1
Conventional medicine trial and error	0	2	0
Information available and involvement or medical practitioner	2	5	3
Does trial and error with both conventional and alternative medicine	0	1	0
	Level of education		
	Higher Degree	College or related	None or primary
Most reasons	**lowest**	**highest**	**second highest**
External knowledge	**6**	**17**	**11**
No side-effect	5	5	2
Source about alternative medicine	0	0	2
Word of mouth	0	1	0
Lack of knowledge	**7**	**16**	**9**
Knows no one used	0	0	1
Not think about it, no comment	1	1	0
Not used that much or not a regular user	1	3	3
Personal experience	**3**	**23**	**4**
Personal experience side-effects	**1**	**7**	**0**
Trial and trust (11), see also comparison conventional medicine	**3**	**3**	**5**
Conventional medicine based on trial and error	1	0	1
Does trial and error with both conventional and alternative medicine	1	0	0
Trial and error or trust	3	3	4
Shops (1)	0	1	0
Used long, past (1)	1	0	0
Availability not equal safety (1)	0	1	0
Comparing effectiveness (15)	2	11	2
Not effective (2)	0	1	1
Not help but not harmful (2, 1 [b])	1	1	0
Factors determining, depends on	**17**	**42**	**17**
Alternative practitioner bad, inexperienced, not qualified (5)	2	2	1
Depend on individual (38, 4 [b])	9	22	7
How used (19, 1 [b])	6	12	3
Regulatory and other standardisation (6, 2 [b])	1	5	0
Type of condition (1)	1	0	0
Food and other allergy (3)	1	2	0
Health status (2)	1	1	0
Measurement of side-effects	**14**	**54**	**23**
Psychological (1)	0	1	0
Rare, not life threatening (20, 1 [b])	5	14	3
Medication choice, commitment to conventional medicine, to alternative medicine	**3**	**11**	**6**
Choice of medicine based on individual (1)	0	1	0
Chooses conventional medicine and sticks to it (3)	2	0	1
Does not take medicine unnecessarily (1)	0	1	0
Never used alternative medicine but then says has used (3)	0	3	0
Taking lots of tablets (1)	0	0	1
Use alternative medicine instead of conventional medicine (4)	1	3	0
Weight the benefits and or risk of alternative medicine (6)	1	1	4
Would consider alternative medicine use (3)	0	3	0
Comparison with conventional medicine, see also measurement	**10**	**31**	**14**
Alternative around for long, conventional from alternative medicine (5, 2 [b])	1	2	2
Aware of alternative side-effect because of conventional medicine (1)	0	1	0
Chooses conventional medicine and sticks to it (3)	2	0	1
Conventional medicine trial and error (2)	1	0	1
Experience of side-effect to conventional medicine (8)	3	5	0
Information available and involvement or medical practitioner (10)	2	3	5
Does trial and error with both conventional and alternative medicine (1)	1	0	0
Safe, not, less harmful, compared to conventional medicine (35, 2[b])	3	24	8
Thalidomide (1)	0	0	1
Regulation no side-effects (6, 2 [b])	2	3	1
	Speciality		

	O & T	S	E	GM	G
External knowledge (34), see also availability	8	13	1	10	0
Side-effect (14, 1 [b])	2	7	1	6	0
No side-effect (12)	3	4	0	5	0
Types used by others (3)	1	2	0	0	0
Source about alternative medicine	2	0	0	0	0
Word of mouth (1 [b])	0	0	0	1	0
Lack of knowledge (32)	15	11	0	6	0
No experience or less(13)	4	4	0	5	0
Knows no one used (1 [b])	0	0	0	1	0
Not think about it, no comment (2)	0	1	0	1	0
Not used (7)	1	1	0	1	0
Not used that much or not a regular user (7)	3	2	0	2	0
Should enquire (14)	6	6	0	2	0
Personal experience (30)	9	12	2	6	1
Personal experience side-effects	3	3	0	2	0
Personal experience no side-effect	6	9	2	4	1
Trial and trust (11), see also comparison conventional medicine	2	4	0	5	0
Conventional medicine based on trial and error	2	0	0	0	0
Does trial and error with both conventional and alternative medicine	0	0	0	1	0
Trial and error or trust	1	4	0	5	0
Weights benefits and risk of am before using					
Availability (11)	4	5	0	2	0
Around for long, conventional from alternative (5, 2 [b])	2	2	0	1	0
Available to public promoted, broadcasted so should be safe (11, 2 [b])	4	5	0	2	0
Other country influence (3, 1 [b])	1	1	0	1	0
Shops (1)	0	1	0	0	0
Used long, past (1)	0	0	0	1	0
Availability not equal safety (1)	0	1	0	0	0
Comparing effectiveness (15)	4	6	1	4	0
Effective (13, 1 [b])	2	6	1	4	0
Not effective (2)	0	1	0	1	0
Not help but not harmful (2, 1 [b])	2	0	0	0	0
Factors determining, depends on	25	27	3	19	2
Action of alternative medicine itself (4)	0	1	0	2	1
Alternative practitioner bad, inexperienced, not qualified (5)	1	2	0	1	1
Depend on individual (38, 4 [b])	10	15	3	9	1
How used (19, 1 [b])	8	5	0	8	0
Depends on type of alternative (20, 1 [b])	8	5	0	7	0
Regulatory and other standardisation (6, 2 [b])	5	1	0	0	0
Type of condition (1)	1	0	0	0	0
Food and other allergy (3)	1	0	0	2	0
Health status (2)	0	1	0	1	0
Measurement of side-effects	31	33	3	21	1
All or any medicines can side-effect (35, 3 [b])	11	12	2	10	0
Anything, everything can have side-effect (17)	8	5	0	3	1
Psychological (1)	0	0	0	1	0
Compared to conventional less harm (35)	15	10	2	8	0
Like conventional medicine too can have side-effect (21, 1 [b])	10	5	2	4	0
Possible interaction if used in combination with conventional (3)	1	2	0	0	0
Undecided whether less side-effect than conventional medicine	0	0	1	0	0
Rare, not life threatening (20, 1 [b])	6	11	0	3	0
Medication choice, commitment to conventional medicine, to alternative medicine	4	10	0	6	0
Choice of medicine based on individual (1)	0	1	0	0	0
Chooses conventional medicine and sticks to it (3)	2	0	0	1	0
Does not take medicine unnecessarily (1)	0	1	0	0	0
Never used alternative medicine but then says has used (3)	0	2	0	1	0
Taking lots of tablets (1)	0	0	0	1	0
Use alternative medicine instead of conventional medicine (4)	1	3	0	0	0
Weight the benefits and or risk of alternative medicine (6)	0	3	0	3	0
Would consider alternative medicine use (3)	2	1	0	0	0
Comparison with conventional medicine, see also measurement	23	18	2	12	0
Alternative around for long, conventional from alternative medicine (5, 2 [b])	2	2	0	1	0
Aware of alternative side-effect because of conventional medicine (1)	0	1	0	0	0
Chooses conventional medicine and sticks to it (3)	2	0	0	1	0
Conventional medicine trial and error (2)	2	0	0	0	0
Experience of side-effect to conventional medicine (8)	4	2	1	1	0
Information available and involvement or medical practitioner (10)	4	4	0	2	0
Does trial and error with both conventional and alternative medicine (1)	0	0	0	1	0
Safe, not, less harmful, compared to conventional medicine (35, 2[b])	15	10	2	8	0
Thalidomide (1)	0	0	0	1	0
Regulation no side-effects (6, 2 [b])	3	1	0	2	0

Frequency distribution of in-patients
highest
second highest
lowest

6.2.2.6 In-patients perceptions of potential interactions of alternative medicine

The number of in-patients with perceptions of potential interactions of alternative medicine was substantially lower (Table 6.2.12.1) than the perceptions of effectiveness and side-effects of alternative medicine in the previous results. A considerably higher number of the in-patients (more than half of the in-patients) had no perceptions and were uncertain about potential interactions between herbal remedies or supplement and conventional drugs.

Arising out of responses to open questions, it was clear that lack of knowledge was the most important reason for in-patients' perception of potential interactions between herbal remedies or supplements and conventional drugs (Table 6.2.12.2). Availability and trial and trust of alternative medicine were reasons for perceptions of potential interactions similarly to perception of effectiveness and side-effects. However there were more in-patients with reasons relating to availability for the perception of potential interactions than to the perception of side-effects.

Again there was a higher perception of potential interactions among the female in-patients (Table 6.2.12.1-2). Similarly there was consistency in that male in-patients reasons were towards commitment to conventional medicine, lack of knowledge and availability of alternative medicine. Also in the same view was that there was a higher perception of potential interactions among in-patients above 60 years of age, college or related level of education and in-patients on orthopaedics speciality. However there was a higher number having lack of knowledge for in-patients with higher level of education despite there being fewer in the investigation than in-patients with lower level of education. Other features regarding in-patients perceptions with higher level of education were involvement of medical practitioners, comparison with conventional medicine, how used, if used properly, used under monitoring and if not monitored. There was also more uncertainty about the perception of potential interaction among age group above 60 years and in-patients in the general surgery and less uncertainty among in-patients with higher level of education.

Table 6.2.12.1 Frequency distributions and associations between in-patients perceptions of potential interaction of herbal remedies or dietary supplement and conventional drugs and the prevalence of use, consideration of future use of alternative medicine and characteristics of in-patients

Prevalence of use of alternative medicine, Table 5.2, Section 5.3.1.1	**Perceptions of potential interactions between herbal remedies or dietary supplements and conventional drugs 233 (88.7%) in-patient**				
	Frequency distributions (percentage within characteristics)			p-value	Cramer's V
	Yes 88 (37.8)	No 67 (28.6)	Do not know 78 (33.4)		
At some point in life				0.806	0.043
Yes	79 (37.4)	62 (29.4)	70 (33.2)		
No	9 (40.9)	5 (22.7)	8 (36.4)		
Herbal remedies or dietary supplement				0.589	0.067
Yes	76 (37.3)	61 (29.9)	67 (32.8)		
No	12 (4.4)	6 (20.7)	11 (37.9)		
Other forms of alternative medicine				0.447	0.083
Yes	68 (40.2)	47 (27.8)	54 (32.0)		
No	20 (31.3)	20 (31.3)	24 (37.5)		
Consideration of future use of alternative medicine (number of in-patients, Table 5.9.1.1)					
Yes	64 (72.7)	54 (80.6)	51 (65.4)	0.065	0.138
No	14 (15.9)	8 (11.9)	9 (11.5)		
Do not know	10 (30.3)	5 (15.2)	18 (54.5)		
Characteristics of in-patients (number of in-patients, Table 5.1.1, Section 5.2.4)	(Percentage within characteristics)				
Gender				0.132	0.132
Male	39 (36.8)	25 (23.6)	42 (39.6)		
Female	49 (38.6)	42 (33.1)	36 (28.3)		
Age group in years				0.252	0.107
Less than 40	15 ((46.9)	11 (34.4)	6 (18.8)		
40-60	24 (30.8)	23 (29.5)	31 (39.7)		
Above 60	49 (39.8)	33 (26.8)	41 (33.3)		
Level of education				0.892	0.049
None or primary	21 (32.8)	21 ((32.8)	22 (34.4)		
College	53 (39.8)	36 (27.1)	44 (33.1)		
Higher degree	21 (32.8)	10 (27.8)	12 (33.3)		
Background				0.512 †	0.090 †
White British	87 (37.8)	67 (29.1)	76 (33.0)		
Asian	1 (33.3)	0	2 (66.7)		
Speciality wards				1000 †	
Orthopaedics & trauma	29 (37.7)	24 ((31.2)	24 (31.2)		
General surgery	25 (35.2)	17 23.9)	29 (40.8)		
Elderly	3 ((37.5)	3 (37.5)	2 (25.0)		
General medicine	27 (39.1)	20 (29.0)	22 (31.9)		
Gynaecology	4 (50.0)	3 (37.5)	1 (12.5)		

* Statistically significant association p-value (less or equal) 0.05 with Chi-square or Fisher's [f] exact test and Cramer's' V shows strength of association. "Do not know" included other similar responses like "unsure", "uncertain" or "cannot say"

Table 6.2.12.2 Reasons for in-patients' perception of potential interactions between herbal remedies or supplements and conventional drugs

Reasons for perception of potential interaction of herbal remedies or dietary supplements and conventional drugs (number of in-patients)	Frequency distribution of in-patients perceptions of effectiveness Table 5.12.1		
	Yes	Do not know	No
Lack of knowledge (45, 3 [b]), see personal experience and other comparison with conventional medicine	16	23	6
Not an expert to know (10)	0	7	3
Knowledge on conventional medicine information than (8)	5	3	0
Alternative medicine itself (research and other information like contents) (30, 3 [b])	14	14	2
Generally on medicine (2)	0	1	1
Would not know if contents of alternative medicine would (2, 1 [b])	1	1	0
Medical practitioner involvement Consult doctor, what doctor says, Should accept alternative medicine	14	4	5
External knowledge (13)	3	1	7
Personal experience (24)			
Personally taking no interaction (12)	0	3	9
Personally not used much or recently to know (9)	1	6	2
Personally using currently in hospital (3)	0	0	3
Alternative medicine itself potential interactions (14, 3 [b])	5	4	5
Are chemical (4)	4	0	0
Not regulated, standardised, tested (2, 1 [b])	1	1	0
Natural but concern may have potential interaction (7, 1 [b])	0	2	5
Alternative medicine itself no potential interaction (6)	0	0	3
Always contain exact content (1)	0	0	1
Natural, pure, not chemical (6)	0	1	5
Availability of alternative medicine (18, 1[b])	5	4	9
Availability, procurement means no potential interaction (12)	2	3	7
Inappropriate access, easy accessibility (2)	2	0	0
Other country positive influence (5, 1 [b])	1	2	2
Available as choice (1)	0	0	1
Trail before knowing (3, 1 [b])	1	2	0
Other comparison with conventional medicine			
Alternative safety compared to conventional (8)	4	1	3
Adverse drug reaction (ADR) (1)	1	0	0
Concerns of ADR (3)	0	1	2
Should work together (1)	0	0	1
Conventional from alternative (2)	0	1	1
Conventional medicine potential interactions despite knowledge (1)	1	0	0
Conventional medicine did not interact (1)	0	1	0
Not know if alternative medicine is as good (1)	0	1	0
Available information than alternative medicine (1)	1	2	0
Convention can on alternative (2)	1	1	0
Like conventional (11)	9	1	1
Any medicine can (4, 1 [b])	4	0	0
Depends on (34, 5 [b])			
How used (20, 2 [b])	16	1	3
If not on too many medicines (1)	1	0	0
What used for (3)	1	1	1
If get the balance right (1)	1	0	0
Same mechanism or work for same thing or way (1)	1	0	0
If used for different things or worked in different ways or reaction (2)	2	0	0
If used properly or not used (6)	5	0	1
If not monitored (2)	2	0	0
Used under monitoring no potential interaction (6)	4	0	2
Depend on medicine (6, 1 [b])	4	0	2
Depends on some alternative medicine (5)	4	0	1
depends on Individual, belief (5, 3 [b])	4	1	0
Not with over the counter but with prescription (1)	1	0	0
Mix both (7)	3	2	2
Will not mix (28, 1 [b])	23	5	0
Should not self-diagnose (1)	1	0	0
Bad way (54, 5 [b])	49	2	3
Cannot say good or bad (5, 1 [b])	2	3	0
Good not in bad way (67, 7 [b])	19	8	39
Chooses conventional (4)	1	3	1
Chooses alternative (7, 1 [b])	2	3	2
Taking many medicine (2, 1 [b])	2	1	0

[b] = in-patients that have not used alternative medicine at some point in life (Table 5.3.1, Section 5.3.1)

Table 6.2.12.2 Reasons for in-patients' perception of potential interactions between herbal remedies or supplements and conventional drugs and characteristics of in-patients

Reasons for perception of potential interaction of herbal remedies or dietary supplements and conventional drugs (number of in-patients)	Frequency distribution of characteristics of in-patients		
	Background		
	White	Asian	
All reasons	highest	lowest	
Medical practitioner involvement: Consult doctor, what doctor says,	22	1	
Availability of alternative medicine			
Other country positive influence	5	1	
Comparison with conventional medicine: Like conventional	2	1	
Will not mix	27	1	
Chooses conventional	4	1	
Chooses alternative	6	1	
	Gender		
	Male	Female	
All other reasons	lowest	highest	
Lack of knowledge			
Not an expert to know ; Generally on medicine			
Personal experience (24): Personally not used much or recently to know			
Alternative medicine itself potential interactions			
Are chemical; Not regulated, standardised, tested; Natural but concern may have potential interaction			
Alternative medicine itself no potential interaction			
Natural, pure, not chemical			
Availability of alternative medicine			
Inappropriate access, easy accessibility			
Other comparison with conventional medicine			
Conventional from alternative; Conventional medicine potential interactions despite knowledge; Conventional medicine did not interact; Not know if alternative medicine is as good;			
Convention can on alternative	1	1	
Depends			
What used for; Depend on medicine; Depends on some alternative medicine; Not with over the counter but with prescription			
Should not self-diagnose	1	0	
	Age group in years		
	Less than 40	40-60	Above 60
Other reasons	lowest		highest
Lack of knowledge	7	18	20
Knowledge on conventional medicine information than	3	4	1
Alternative medicine itself	6	12	12
Generally on medicine	1	0	1
Would not know if contents of alternative medicine would	0	2	0
External knowledge	0	6	5
Personal experience			
Personally taking no interaction	2	0	10
Personally using currently in hospital	0	2	1
Alternative medicine itself potential interactions	4	4	6
Are chemical	1	0	3
Not regulated, standardised, tested	0	0	2
Natural but concern may have potential interaction	3	2	2
Alternative medicine itself no potential interaction	1	2	0
Always contain exact content	0	1	0
Natural, pure, not chemical	1	1	4
Availability of alternative medicine	2	5	11
Inappropriate access, easy accessibility	1	0	1
Available as choice	0	0	1
Other comparison with conventional medicine			
Alternative safety compared to conventional	2	3	3
Adverse drug reaction (ADR)	0	0	1
Concerns of ADR	1	0	2
Should work together	0	0	1
Conventional from alternative	0	1	1
Conventional medicine potential interactions despite knowledge	0	0	1
Conventional medicine did not interact	0	0	1
Not know if alternative medicine is as good	0	1	0
Available information than alternative medicine	0	2	1
Convention can on alternative	0	1	1

Like conventional	3	4	4
Any medicine can	0	2	2
Depends on			
How used	5	9	6
If not on too many medicines	0	0	1
What used for	1	2	0
If get the balance right	1	0	0
Same mechanism or work for same thing or way	0	1	0
If used for different things or worked in different ways or reaction	1	0	1
If used properly or not used (6)	1	2	3
If not monitored; Used under monitoring no potential interaction			2
Depend on medicine	3	3	0
Should not self-diagnose	1	0	0
Chooses alternative	1	3	3
	Level of education		
	Higher Degree	College	None or primary minimum
Other reasons	lowest	Highest	
Lack of knowledge	12	25	8
Not an expert to know	2	6	2
Knowledge on conventional medicine information than	2	4	2
Alternative medicine itself (research and other information like contents)	9	17	4
Generally on medicine	1	0	1
Would not know if contents of alternative medicine would	0	2	0
Medical practitioner involvement; Consult doctor, what doctor says,**;** Should accept alternative medicine	6	16	1
External knowledge	1	8	2
Personally taking no interaction	2	10	0
Alternative medicine itself potential interactions	2	8	4
Are chemical	2	1	0
Not regulated, standardised, tested	0	2	0
Natural but concern may have potential interaction	0	3	4
Natural, pure, not chemical	1	0	4
Availability of alternative medicine	3	12	3
Inappropriate access, easy accessibility	1	1	0
Other country positive influence	1	4	0
Available as choice	0	1	0
Trail before knowing	0	1	2
Other comparison with conventional medicine			
Alternative safety compared to conventional	0	4	4
Adverse drug reaction (ADR)	0	1	0
Concerns of ADR	0	1	2
Should work together	0	1	0
Conventional from alternative	1	1	0
Conventional medicine potential interactions despite knowledge	0	1	0
Conventional medicine did not interact	0	0	1
Not know if alternative medicine is as good	0	1	0
Available information than alternative medicine	0	3	0
Convention can on alternative	0	1	1
Like conventional	4	7	0
Any medicine can	2	2	0
Depends on			
How used	5	12	3
If not on too many medicines	0	1	0
What used for	0	0	3
If used properly or not used; If not monitored; Used under monitoring no potential interaction			
Depend on medicine	0	4	2
Depends on some alternative medicine	2	2	1
depends on Individual, belief	0	2	3
Not with over the counter but with prescription; **Should not self-diagnose**			

	Speciality				
	Orthopaedics & trauma	General Surgery	Elderly	General Medicine	Gynaecology
Lack of knowledge	14	15	1	13	2
Not an expert to know	4	3	0	3	0
Knowledge on conventional medicine information than	4	2	0	2	0
Alternative medicine itself (research and other information like contents)	7	12	1	8	2
Generally on medicine	0	0	0	2	0
Would not know if contents of alternative medicine would	1	1	0	0	0
Medical practitioner involvement	11	4	0	6	2
External knowledge	4	3	0	3	1
Personal experience					
Personally taking no interaction	6	3	0	3	0
Personally not used much or recently to know	2	5	0	2	0

Personally using currently in hospital	2	0	0	1	0
Alternative medicine itself potential interactions	5	5	0	4	0
Are chemical	0	3	0	1	0
Not regulated, standardised, tested	0	0	0	2	0
Natural but concern may have potential interaction	4	2	0	1	0
Alternative medicine itself no potential interaction	0	1	0	2	0
Always contain exact content	0	1	0	0	0
Natural, pure, not chemical	2	0	1	1	0
Availability of alternative medicine	5	7	0	5	1
Availability, procurement means no potential interaction	4	5	0	2	1
Inappropriate access, easy accessibility	0	1	0	1	0
Other country positive influence	1	2	0	2	0
Available as choice	0	0	0	1	0
Trail before knowing	0	0	0	3	0
Other comparison with conventional medicine					
Alternative safety compared to conventional (8)	3	2	1	1	1
Adverse drug reaction (ADR)	1	0	0	0	0
Concerns of ADR	0	1	0	2	0
Should work together	0	1	0	0	0
Conventional from alternative	1	1	0	0	0
Conventional medicine potential interactions despite knowledge	0	0	0	1	0
Conventional medicine did not interact	0	1	0	0	0
Not know if alternative medicine is as good	1	0	0	0	0
Available information than alternative medicine	2	1	0	0	0
Convention can on alternative	1	0	0	1	0
Like conventional	1	6	0	4	0
Any medicine can	1	1	0	1	1
Depends on					
How used	7	6	0	6	1
If not on too many medicines	0	0	0	1	0
What used for	1	2	0	0	0
If get the balance right	0	0	0	1	0
Same mechanism or work for same thing or way	1	0	0	0	0
If used for different things or worked in different ways or reaction	1	1	0	0	0
If used properly or not used	3	1	0	2	0
If not monitored	1	0	0	1	0
Used under monitoring no potential interaction	4	0	0	1	1
Depend on medicine	1	3	0	1	1
Depends on some alternative medicine	2	2	0	1	0
depends on Individual, belief	1	2	0	2	0
Not with over the counter but with prescription	0	1	0	0	0
Mix both	3	3	0	1	0
Will not mix	13	7	2	4	2
Should not self-diagnose	1	0	0	0	0
Bad way	12	13	2	23	4
Cannot say good or bad	2	0	1	2	0
Good not in bad way	17	20	1	27	1
Chooses conventional	1	1	0	3	0
Chooses alternative	4	3	0	0	0
Taking many medicine	2	0	0	1	0

Frequency distribution of in-patients

highest

second highest

lowest

6.2.3 Incidence of possible adverse outcomes of alternative medicine used by in-patients

6.2.3.1 Potential interactions between herbal remedies or dietary supplements (HS) and conventional drugs used

As can be seen from Table 6.2.13.1, about three quarters (91 of 121) of the in-patients who used herbal remedies or dietary supplements concurrently with conventional drugs experienced potential interaction. More than two third (64 in-patients) had documented clinical potential interactions. Almost all the in-patients (63 of 66 in-patients) within the month prior to admission had an incidence of potential interactions. Similarly a substantial number (42 in-patients) were potential interactions with documented clinical evidence. Also, similarity between the reason for current hospitalisation and potential interactions between HS and conventional drugs was identified for some of the in-patients (Table 6.2.13.2).

Essentially potential interactions occurred between fourteen different types of HS and herbal teas with a variety of classes of conventional drugs in this investigation. There was mostly a risk of increase of international normalised ratio (INR) and anti-inflammatory effect between glucosamine and non-steroidal anti-inflammatory drugs (NSAIDs) and anticoagulants used mostly in this investigation, in the month of admission, similarity with the cause of admission in hospital and case of post operation bleed during the present admission in hospital. The possibility of risk of bleed followed with the use of garlic and this was also with the cause of current admission in hospital. Similarly, anti-platelet properties have been found with evening primrose and the current cause of admission. Other substantial cases with nutritional oil and echinacea were with the possibility of increase in INR, anti-inflammatory effect and risk of bleed and in the month of admission. Other well used and potential interactions were between anti-hypertensive and diuretic drugs. A high incidence of potential interactions also occurred between the common use and use in the month of admission between analgesics drugs with glucosamine, valerian and echinacea. In this group of in-patients, the concurrent use of herbal teas and potential interactions with most of the classes of conventional drugs was identified. This included a case of iron deficiency anaemia between black tea and ferrous sulphate at the time of admission in hospital.

Table 6.2.13.1 Potential interactions between herbal remedies or dietary supplements and conventional drugs used by in-patients

Herbal remedy or dietary supplement	Conventional drugs used by patients		Potential interactions [c] = Documented clinical evidence among 64 in-patients	Number of in-patients with potential interactions/concurrent use		
	Classes of conventional drugs			At some point 91/121 in-patients	within one year 77/81 in-patients	within one month n=63/66 inpatients
Glucosamine	**Antidiabetics**	Metformin	Not established, but increased blood-glucose with glucosamine has been recorded in patients with diabetes.	2	1	1
	Anticoagulants **Antiplatelet** **NSAIDs**	Warfarin, tinzaparin Aspirin, clopidogrel, Indomethacin, ibuprofen, diclofenac,	With warfarin moderate/modestly increases INR and a case of decreases in INR. [c] May increase anti-inflammatory effect, should be taken with caution with antiplatelet.	11 27	10 20	8 1
	Diuretics	Lisinopril, perindopril,	Unnamed diuretics slightly reduced efficacy of glucosamine. [c]	13	9	4
	ACE inhibitors	Ramipril	Possible antagonise antihypertensive effect of benazepril an ACE licensed in US.	6	5	1
	Anti-hypertensive	Amlodipine, moxonodine, felodipine,atenolol	May cause hyperkalemia or sodium depending on specific product of glucosamine.	11	7	4
	Antibiotic Tetracycline	Doxycycline	Increase in serum tetracycline level. [c]	2	2	
	Analgesic	Paracetamol, Co-dydramol (paracetamol & codeine)	Might reduce efficacy of paracetamol. [c] Suggested that increase serum sulphate levels from glucosamine sulphate	27	19	8
Garlic	**Anticoagulants** **Anti-platelet** **NSAIDs**	Tinzaparin Aspirin, Ibuprofen, naproxen, diclofenac,	Additive antiplatelet and anticoagulant effect increase risk of bleeding. [c] Unclear, but garlic may inhibit binding of fibrinogen to fibrin receptor a final step of the platelet aggregation pathway	2 15	2 8	 7
	ACE inhibitors	Lisinopril, perindopril, ramipril	Marked hypotension was reported with lisinopril. [c]	7	4	3
	Anti-hypertensive	Diltiazem, atenolol,	May increase antihypertensive property. Garlic has been found in some studies to lower BP. [c]	6	2	4
	Diuretic	Propanolol, bisoprolol Bendroflumethiazide, furosemide, spironolactone,	Garlic is reported to cause vasodilatation and blood pressure reduction. Diltiazem increased the inhibitory chronotropism of garlic on right atria.	7	3	2
	Antidiabetics	Metformin, mixtard	May improve glucose control requiring reduction in antidiabetics.	3	2	1
Valerian	**Opiod analgesics** **Anti-emetics** **Anti-histamine** **Anti-depressants**	Tramadol, codeine Metoclopramide Cyclizine, loratadine Amitriptyline, venlafaxine, paroxetine, quetiapine.	May cause excessive physical depression, sedation and impairment. Additive CNS depressant effect Theoretical possibility with other drugs with sedative properties.	6 1 3 3	4 2 2	2 1 1 1
	ACE inhibitors	Enalapril, ramipril	May increase photosensitivity, adding to risk of sunburn or rash.	3	1	2
Evening primrose	**Anti-platelet** **NSAIDs**	Aspirin Diclofenac, celebrex, rofecoxib, ibuprofen	Theoretical production of prostaglandin E, therefore anti-inflammatory effects of NSAIDs could be opposed. Evening primrose has potential anti-platelet properties	6	4	2
	Antidepressant	Amitriptyline, venlafaxine, citalopram	May lower seizure threshold and increase the risk for seizure activity.	3	2	1

Herbal remedy or dietary supplement	Conventional drugs used by patients		Potential interactions [c] = Documented clinical evidence among 64 in-patients	Number of in-patients with potential interactions/concurrent use		
	Classes of conventional drugs			At some point 91/121 in-patients	within one year 77/81 in-patients	within one month n=63/66 inpatients
	Phenothiazines	Thioridazine	Not understood, suggested may increase epileptogenic effect of phenothiazines rather than having than having an epileptogenic action itself, another it mighty unmask temporal lope epilepsy	1		
Echinacea	**Analgesic** **Lipid lowering statins**	Paracetamol Pravastatin	May increase the risk of hepatotocixity	4 1	2	2
	Anti-platelet **NSAIDs** **Anticoagulants**	Aspirin, Ibuprofen, naproxen, Tinzaparin	May increase risk of bleeding because of coumarin derivatives in herb	4 1	2	2
	Corticosteroids **Antimetabolites**	Prednisolone Methotrexate	May interfere with immunosuppressive effect. Immunomodulatory effects of echinacea herbs may reduce effectiveness of immunosuppressant. Based on theoretical prediction, but manufacturer advice prudent to monitor.	1 1		1 1
	Bronchodilator	Theophylline	May reduces clearance, hence increase effect and side-effect	1		1
Black cohosh	**B- blocker**	Atenolol	May increase peripheral vasodilatation , resulting in hypotension	1		1
Kelp	**NSAIDs**	Ibuprofen	May increase risk of bleeding. Anticoagulant activity, the fucoidin in may inhibit thrombin-induced human platelet activation	1	1	
Linseed	**Anti-hypertensive**	Ramipril	Might increase chance of BP going to low.	1	1	
Ginkgo biloba	**NSAIDs** **Thiazide**	Ibuprofen Bendroflumethiazide	May increase risk of bleeding because of coumarin and antiplatelet activity [c]. A patient taking a thiazide diuretic experienced increased blood pressure	1 1	1 1	
Rosehip	**Mineral supplement**	Iron	May increase absorption of iron	1		1
Rhubarb	**Corticosteroids**	Prednisolone	Theoretical risk of hypokalemia	1	1	
Clove oil	**NSAIDs** **Anti-coagulants**	Ibuprofen, diclofenac, Tinzaparin	May increase risk of bleeding because of coumarin or antiplatelet activity	2 1	2 1	
St John's Wort	**PPI**	Lansoprazole	Induced metabolism of omeprazole might result in inefficacy. Other PPI are likely to be similarly affected. May increase photosensitivity, adding to risk of sun burn.	1		1
	CCB	Nicardipine	May reduce bioavailability of nifedipine. Other CCB are expected to interact similarly. Reduce CCB efficacy due to CYP3A4 and P-glycoprotein drug transporter induction [c]	1		1
	ACE inhibitors	Lisinopril, perindopril	May increase photosensitivity, adding to risk of sun burn.	2		2
	Contraceptive	Contraceptive	Break through bleeding may occur. May result in failed contraceptive [c]. Enzyme inducer of contraceptive metabolism	1		1
	Anti-convulsants	Carbamazepine	Modest increase in clearance of carbamazepine. [c] Moderate inducer of CYP3A4	1		1
Nutritional oil	**Anti-platelet agents** **NSAIDs**	Aspirin, Diclofenac, ibuprofen, celebrex, rofecoxib, indomethacin	Antithrombotic effect, increases INR Cod liver oil increases of INR with high or changing doses. Case report of elevated INR when fish was added [c]	25	20	5
	Anti-coagulants	Warfarin, tinzaparin	Prolongation of coagulation times after adding omega-3 fatty acids to a warfarin regimen [c]	3	2	1
Herbal teas	**Cardiac glycoside**	**Digoxin, quinine**	Flavonoids may increase oral absorption. Peppermint may cause additive effect	3	3	

Herbal remedy or dietary supplement	Conventional drugs used by patients		Potential interactions [c] = Documented clinical evidence among 64 in-patients	Number of in-patients with potential interactions/concurrent use		
	Classes of conventional drugs			At some point 91/121 in-patients	within one year 77/81 in-patients	within one month n=63/66 inpatients
	Opiod analgesic **Anti-emetic** **Anti-depressant**	Fentanyl, oramorph, tramadol Metoclopramide Amitriptyline	Lemon balm may cause excessive sedation Nettle may cause excessive physical depression, sedation and impairment.	10 2 4	10 2 4	
	Anticoagulants **NSAIDs** **Anti-platelet**	Warfarin NSAID Aspirin	Tea and warfarin reduced INR. [c] Chamomile, ginger and other herbs have the potential to augment antiplatelet, NSAIDs, heparin and other prescriptions drugs with anticoagulant effect. Feverfew may increase bleeding because of antiplatelet activity.		1 12 1	
	Lipid lowering statins	Simvastatin, atorvastatin	Marked increase in simvastatin level.	3	3	
	Anti-diabetic	Metformin, glimepiride	Dandelion may improve glucose control, requiring reduction of antidiabetics. 'sho-saiko-to' which ginger is one of seven constituent reduced blood –glucose level effect of tolbutamide.	4	4	
	ACE inhibitors	Perindopril, enalapril	Black and green tea may cause modest increase in blood pressure.	3	3	
	Diuretics	Furosemide	Fennel with loop diuretics may cause photosensitivity, increasing risk of sunburn. Experimentally fennel increased clearance of enalapril.	1	1	
Dandelion	**Diuretic**	Furosemide	Diuretic effect, may potentiate effect of diuretics	1	1	
Black tea	**Mineral supplement**	Ferrous sulphate	Black tea may decrease iron absorption and may contribute to iron deficiency anaemia		1	

ACE inhibitors= Angiotensin converting enzyme, CCB=Calcium channel blockers, NSAIDs =Non- steroidal anti-inflammatory drugs, PPI =Proton pump inhibitors
INR = International normalised ratio

Table 6.2.13.2 Potential interactions between herbal remedies or dietary supplements and conventional drugs used by in-patients in month of admission and cause of current admission in hospital

Herbal remedies or dietary supplements used by in-patients	Conventional drugs used by in-patient	Potential interactions	Cause of current admission in medical notes
Garlic	NSAID	Additive antiplatelet and anticoagulant effect increase risk of bleed [c]	Episode of fresh bleed (symptom)
Evening primrose	Antiplatelet	Theoretical has potential antiplatelet properties	Passing mucous and bright red blood frequent
Glucosamine	Anticoagulant	Moderate/modest increase and case of decrease in INR [c]	? blood vomited with food
			Post-operative bleed
Glucosamine	Anticoagulant	Moderate/modest increase and case of decrease in INR [c]	Three cases of post operation bleed
Glucosamine	Antiplatelet	May increase anti-inflammatory effect, should be taken with caution with antiplatelet.	Two case post operation bleed
Black tea	Ferrous sulphate	May decrease iron absorption and may result in iron deficiency anaemia	Anaemia pale complexion (symptom)

[c] = documented clinical evidence in the literature

6.2.3.2 Side-effect reactions from alternative medicine used by the in-patients

More than a quarter (82, 37.8%), of the 217 in-patients experienced at least a side-effect reaction to an alternative medicine, resulting in a total of 133 side-effect reactions (Table 6.2.14.1). About 15% (14 in-patients) using alternative medicine within the month prior to the current admission in hospital experienced a reaction. The time sequence of a reaction shows attribution of adverse effects to the alternative medicine (Chapter 3, Section 3.4.3). Most of the in-patients experiences of side-effect reactions were confirmed as acute onset. There were two delayed onset of adverse reactions. These were experiences of syncope to Chinese herbs and vomiting after the use of dried herbal leaves (Table 6.2.14.3). A majority of the in-patients' had side-effect reactions that had been previously documented with clinical evidence in the literature as being caused by the alternative medicine (Chapter 3, Section 3.4.3). However, as shown in the Results (Table 6.2.1.14.1), a number of the side-effects reported by the in-patients were not identified in the literature. Four in-patients had reported side-effect reactions as possibly giving rise to their on-going medical conditions. Interestingly, one case of haemoptysis from massage was actually connected by an in-patient with the episode of pulmonary emboli that was an ongoing medical condition and the reason for current admission. However this was documented as pulmonary emboli of no aetiology and suspected family history in the in-patient's medical notes. Another was the case of NSAID and Devil's Claw reported to have been an onset

of hiatus hernia almost three decades ago had no clinical evidence of documentation in the literature for these reactions. On the other and a case of which the in-patient of uncertain use kalms caused asthma was documented in the literature. In addition, five of the in-patients side-effects were similar with the reason for admission in hospital documented in the literature (Table 6.2.14.4). Only five of the in-patients reported having disclosed side-effects to a healthcare professional (Table 6.2.14.3). However, only two of these side-effects were found documented in the medical notes of the in-patients. A case of glucosamine and swollen tongue and Elastoplast allergy was reported in the medical notes as a "known drug reaction". The cause of the latter, that was described to have occurred following a visit for osteopathy, was not reported as such in the in-patient's medical notes. There were in-patients who did not consider reporting side-effects because they subsided and they could put up with side-effect because, as described, it was bearable. A range of side-effects were experienced by the in-patients in this investigation. The most common side-effects had included gastrointestinal. These were caused mainly by herbal remedies or dietary supplements. Musculoskeletal related side-effects were caused mainly by other forms of alternative medicine. Herbal remedies or dietary supplements were the most used alternative medicine by the in-patients and more side-effects were experienced by the in-patients taking these forms of alternative medicine. The finding showed that the number of in-patients that had experienced side-effects was high for the alternative medicine that had been used more (Table 6.2.1.14.2). However, valerian products were not the most used but were reported with the most reactions and in the month prior to admission.

Table 6.2.14.1 Side-effect reactions of alternative medicine used reported by in-patients

Types of side-effects reactions (number of reports)	Total number of events of side-effect reactions			Attributed alternative medicine
	Total (82 in-patients)	**Male** (29 in-patient)	**Female** (53 in-patients)	
	133	**45**	**88**	
Gastrointestinal disorders (39)				
Constipation	1	1	0	Evening primrose, cod liver [s], powder for arthritis
Nausea (exacerbation nausea) [m]	2	0	2	Homeopathy (pulsatilla) [m] (Dantas & Rampes 2000; Grabia & E Ernst 2003)
Vomit, sick [m] Feel ill,	7	3	4	Garlic [m] (Ackermann et al. 2001), aloe vera (DAVIS et al. 2006), aromatherapy, evening primrose (Kleijnen 1994) Something for bowel, Cod liver [s], Herbal tea
Darkened Stool [m]	1	0	1	Iron [m] – faecal abnormalities faeces discoloured [s]
Diarrhoea [m]	3	0	3	Multivitamin (iron)[m] - [s], Califig herbal laxative , Herbal tea
Increase defecation, not diarrhoea	1	1	0	Creatine
Flatulence [m], bloating [m], indigestion	5	1	4	Cod liver [s], valerian [s], sea weed (kelp)[m c] (Teas et al. 2009)
Heart Burn [m]	2	1	1	Garlic [m, s] (Ackermann et al. 2001), magnesium
Regurgitation, rifting	4	1	3	Cod liver [s,] garlic [s] (Ackermann et al. 2001)
Stomach discomfort [m] , upset [m], rebellious	7	4	3	Glucosamine [m,] (AlterMeddex)[c,] CHM, evils claw (Setty & Sigal 2005) [,] valerian [m, s], Iron [s]
Wind	2	1	1	Sea weed [c] (Teas et al. 2009), cod liver [s]
Belging [m] , Burp	4	1	3	Cod liver [s] , Garlic [s] (Ackermann et al. 2001)
Central nervous system (15)				
Bitter, bad taste	2	1	1	CHM
Mouth Felt funny				Garlic(Ackermann et al. 2001)
Bad breath	3	2	1	Homeopathy , CHM, Garlic – halitosis [s] (Ackermann et al. 2001)
Headache, exploding head	2	0	2	Agnus [s,] supplements for hormone Iron [s]
Seizures, fits	1	0	1	Acupuncture (Norheim & Fønnebø 1996) [c]
Syncope, faint	2	0	2	Mixture liquid from herbalist, , Alexander technique
Nightmares	1	0	1	Black Cohosh
Dazed	1	0	1	Massage
Dizziness, light headedness [m]	5	1	4	Chiropractic [c] (Hurwitz et al. 2005) , evening primrose, valerian [m, s], angus containing vitamin B and Iron [s] , vitamin B substance [s], adios
Drowsiness	1	1	0	Cannot remember name
Anger	1	0	1	Homeopathy (Grabia & E Ernst 2003)
Tiredness	1	1	0	Homeopathy (Grabia & E Ernst 2003)
Increased night Sweats	1	0	1	Black Cohosh
Thirst	1	0	1	Aqua balm
Restless	1	0	1	Valerian [s]
Sleep	1	0	1	Valerian [s]
Made depression in bereavement worse	1	0	1	St John's Wort[c] (Knuppell & Klause Linde 2004)
Respiratory (7)				
Haemoptysis (bringing up blood)	1	0	1	Massage (E. Ernst 2003)
Flu like	2	0	2	St John's Wort[c] , reflexology
Wheeze	1	0	1	Glucosamine [s]
Asthma [m] (not sure coincide with development of asthma)	1	0	1	Valerian [m s]
Endocrine system (1)				
Increased Blood Sugar	1	0	1	Homeopathy (Grabia & E Ernst 2003)
Skin (8)				
Tingling, dry, itchy rash [m], rash	7	1	6	Valerian [s,] romatherapy (3) (E. Ernst 2000)[,] homeopathy (arsenicum album from arsenic)[m] , massage, aloe vera [c] (E. Ernst 2000)[,] CHM [c] (E. Ernst 2000)[,] no name
Bruises	1	1	0	Massage
Musculoskeletal (32)				
Pain [m], soreness, hurt, aches, burning muscles, stiffness	15	6	9	Valerian, massage [m, c] (E. Ernst 2003), osteopathy [c] (Licciardone et al. 2002), chiropractic [c] (Hurwitz et al. 2005), reflexology
Obstetrics and gynaecology, and urinary tract disorders (3)				
Thrush	1	0	1	Vitamin B
Increased Period	1	0	1	St John's Wort[c] (Knuppell & Klause Linde 2004)
Increase Urination	1	0	1	Massage
Allergies (3)				

Types of side-effects reactions (number of reports)	Total number of events of side-effect reactions			Attributed alternative medicine
	Total (82 in-patients)	**Male** (29 in-patient)	**Female** (53 in-patients)	
	133	**45**	**88**	
Allergy, elastoplasts allergy	2	0	2	herbal tea (chamomile) [c] (E. Ernst 2000), osteopathy
Swollen Tongue	1	0	1	Glucosamine – under gastrointestinal lip swelling [s, d]
Other general signs and symptoms (4)				
Not feel right,	2	0	2	Seaweed, dandelion
Aggravated condition made worse	1	0	1	Chiropractic [c] (Hurwitz et al. 2005)
Aggressive, vigorous [m]	5	4	1	Massage [m, c] (E. Ernst 2003)
Felt beaten up	1	1	0	Massage
Discomfort [m], uncomfortable [m],	11	3	8	Chiropractic [c] (Hurwitz et al. 2005), Osteopathy [c] (Licciardone et al. 2002), massage [c] (E. Ernst 2003) , reflexology [m]

[s] spontaneous report in MHRA (Medicine health regulatory agency); [c] at least a case report ; [m] occurred in month of admission; [d] documented in medical notes as known drug reaction

Table 6.2.14.2 Side-effect reactions of alternative medicine used reported by in-patients

Types of alternative medicine (Total Number of in-patients ; within one month prior to interview in hospital Table 5.14.1)
Herbal remedies or dietary supplements
Valerian (10; 3) Cod liver oil (7) Kelp (5 (3) Garlic (5 (2) Agnus3 Glucosamine (3) Chinese herbal (3) Evening primrose (3) Bella... hormonal (2) Black cohosh (2) Aloe Vera (2) St John's Wort (3) Capsain (2) Bowel tablet 1 Mixture liquid herb (1) Powder for arthritis (1) Califig (1) Devils claw (1) Aqua balm (1) Adios (1)
Other forms of alternative medicine
Massage (10 ;3) Homeopathy (6;1) Chiropractic (6) Osteopathy (5) Reflexology (4 (1) Aromatherapy (4) Alexander technique (1) Acupuncture (1)
Cannot remember name of alternative medicine and or reaction (6)
Herbal tea (3) Dandelion (2) Iron (3) Magnesium (1) Vitamin B (1)

Table 6.2.14.3 Side-effects of alternative medicine used by in-patients in month of admission and similarity with cause of current admission in hospital

In-patients' direct report of experience of side-effects in month of admission during interview (number of in-patients)	Type of alternative medicine implicated	Documented cause of current admission in medical notes (primary diagnosis or signs and symptoms)
Sick (1) [c]	Garlic	Vomiting (symptom) [u]
Flatulence bloat (1) [c]	Kelp seaweed	Abdominal pain (symptom)
Stomach discomfort (1) [c]	Glucosamine	Abdominal pain (symptom)
Upset stomach (1) [c]	Glucosamine	Abdominal pain (symptom)
Coincide with asthma (1) [c]	Valerian	Infective exacerbation of asthma (primary diagnosis)
Coughing blood	Massage	Pulmonary emboli (probably family history)[u]

[u] = in-patient with unknown cause of admission; [c] = documented clinical evidence in the literature

Table 6.2.14.4 In-patients report of side-effect reactions of alternative medicine used

Reported reaction to health professional
... Vomiting and mentioned to doctor who said might not agree with body and reaction subsided when stopped (garlic).
... Don't think agree with because has hiatus hernia. Vomiting few times mentioned to doctor and doctor suggested may not agree with. Symptoms subsided when stopped (garlic)
... Syncope (black out), but cannot remember name, was not immediately but after a while and when stopped felt better. They checked in hospital and says was ok, but was not convinced because symptom resolved after stopping (CHM)
.... Head felt like exploding had to call doctor tablet was withdrawn and another drug was used to treat side-effect. doctor warned her never to take anything without his knowledge (Vitamin containing iron)
... swollen tongue they know (glucosamine)
Not reporting experience of side-effects, see tolerating SE
... Possibly increased period when stopped went back to normal did not report (St John's Wort)
Tolerating side-effects, **see side-effects not bad, expected SE, AM practitioner asked to put up) below**
... A little bit indigestion but not a put-off (Aromatherapy)
.... Dark stool, upset stomach hasn't reported because able to put up with it, run bit- diarrhoea, maybe was given because came in with constipation. (Iron prescribed in hospital)
Delayed onset of reactions
... Vomiting and running toilet, took for a long time perhaps that could have resulted in side-effects, had to stop taking for this reason (Dried leaves)
... Syncope (black out), but cannot remember name, was not immediately but after a while and when stopped felt better. They checked in hospital and says was ok, but was not convinced because symptom resolved after stopping (CHM)
Reaction resolved or subsided after stopping, see also immediately after taking
... Increased period when stopped period went back to normal (St John's Wort).
:... Head felt like exploding had to call doctor tablet was withdrawn and another drug was used to treat SE. doctor warned her never to take anything without his knowledge (Vitamin containing iron)
... Made problem worse increased blood sugar, takes blood reading every day and when withdrawn blood sugar went down (Homeopathy)
... Thought was making ill. Vomiting, although gets a lot with antidepressant so stops and goes to doctor. But sure it was this bowel tablet because it made sick but when stopped it subsided (Big bowel tablet)
... taking for a while body reacted against it, tiredness (drowsiness) so stopped and body seemed to lift (Can't remember name)
... Wheezy chest has history of asthma but makes it worse, when glucosamine was stopped this subsided (Glucosamine)
... Rash really bad rash top of arms. Symptoms subsided after stopping (Kalms)
... Heart burn, the reason was because of mg or because was overweight, but when mg was stopped heart burn subsided (Magnesium)
... Rash, really bad rash top of arms and subsided after stopping (calms).
Immediately after visit to AM practitioner
... Fainted changed practitioner and did not have reoccurrence (Alexander technique).
... 1 bad experience practitioner was too overzealous and massage releases toxins felt bad for couple of days sickly feeling, headache, generally not well, drank plenty of water to relieve symptoms (Massage)
... Could not move initially after it (Chiropractic)
Attributed to cause of medical condition (ongoing) (4)
... bringing up blood, that was when it was detected in hospital she had clot in lungs (clot condition) and has been on warfarin since (Massage)
... developed a bad stomach peptic ulcer (kalms, Angus, containing vitamin B12)
.....no side-effect but not sure if coincide with start of asthma and asked to stop ... (kalms)
..... Stomach was rebellious stopped herb after 3 days, was beginning of hiatus hernia in 90's could have been NSAID as well (Devils claw).
Made underlying conditions worse or aggravated conditions
... Treatment was too aggressive and made pain worse (massage).
.... Reading of blood sugar went high (homeopathy).
... Made worse the plunger went too deep close to spine and made worse (Chiropractic)
...Treatment was too aggressive made pain worse (Massage)
... Made problem worse increased blood sugar, takes blood reading every day and when withdrawn blood sugar went down (Homeopathy)
... First few days of extreme symptoms of anger linked to PMT which is what was taking the homeopathic remedy for. Homeopath advised this will happen but to stick with remedy – and was fine (Homeopathy)
... Wheezy chest has history of asthma but makes it worse, when glucosamine was stopped this subsided (Glucosamine)
... Don't think agree with because has hiatus hernia. Vomiting few times mentioned to doctor and doctor suggested may not agree with. Symptoms subsided when stopped (Garlic)
... Possibly increased period when stopped went back to normal- was not reported (St John's Wort)
... Just made worse, having during bereavement of husband (St John's Wort)
..... Increased night sweat (Black cohosh)
Not certain if related to conventional drugs taken at same time or symptoms of conditions (8)
... Light headedness, upset stomach but has upset stomach any way (kalms).
..... Stomach was rebellious stopped herb after 3 days, was beginning of hiatus hernia in 90's could have been NSAID as well (Devils claw).
... Thought was making ill. Vomiting, although gets a lot with antidepressant so stops and goes to doctor. But sure it was this bowel tablet because it made sick but when stopped it subsided (Big bowel tablet)
... Wheezy chest has history of asthma but makes it worse, when glucosamine was stopped this subsided (Glucosamine)
... Might have had but may not be glucosamine because has a dodgy stomach any way (Glucosamine)
... Don't think agree with because has hiatus hernia. Vomiting few times mentioned to doctor and doctor suggested may not agree with. Symptoms subsided when stopped (Garlic)
.. Light headaches, upset stomach that is why stopped taking any how does have upset stomach with her medicine (kalms)
... Heart burn, the reason was because of magnesium or because was overweight, but when mg was stopped heart burn subsided (Magnesium)

6.2.3.3 Incidence of adverse outcomes of alternative medicine used and characteristics of in-patients

A higher number of female in-patients had experienced potential interactions and had side-effect reactions (Tables 6.2.15). Also there were more in-patients above 60 years having side-effects and potential interactions. However the highest percentage of side-effect reactions was among the in-patients of 40-60 years of age. Some of the in-patients had more than a reaction and previous reactions with conventional drugs. A statistically significant association was identified between potential interactions in the month prior to admission with cardiovascular and digestive diseases.

Table 6.2.15 Characteristics of in-patients and incidence of adverse outcomes of alternative medicine used

Characteristics of in-patients	**Frequency distribution of potential interaction between herbal remedies or dietary supplements and conventional drugs used** (percentage within characteristics)						**Frequency distribution of side-effect reactions of alternative medicine used reported by in-patients**	
	Total	p-value	Documented clinical evidence	p-value	within one month	p-value	Total number of in-patients; total number of reactions	p-value
Gender Male Female	 41 (37.6%) 50 (38.2%)	0.930	 33 (30.3%) 31 (23.7%)	0.249	 28 (25.7%) 35 (26.7	0.857	 30 (27.5%); 45 52 (39.7%); 88	0.048 *
Age group in years Less than 40 40 to 60 Above 60	 10 (31.3%) 24 (30.0%) 57 (44.5%)	0.078	 3 (9.4%) 12 (15.0%) 49 (38.3%)	0.000**	 8 (25.0%) 14 (17.5%) 41 (32%)	0.067	 11 (34.4%); 15 33 (41.3%); 64 38 (29.7%); 54	
Ethnic background White Asian	 91 0						 82 0	
Level of education None and primary College and related Higher degree	 24 (35.3%) 50 (36.8%) 17 (47.2%)		 15 (22.1%) 36 (26.5%) 13 (36.1%)		 11(16.2%) 39 (28.7%) 13 (36.1%)		 18 (26.5%); 23 50 (36.8%); 84 14 (38.9%); 26	
Known adverse drug reaction	50 (43.9%)	0.038 *					39 (34.2%)	0.989
Disease of circulatory system	40 (63.5%)	0.002 *						
Disease of digestive system	37 (58.7%)	0.038 *						

* Statistically significant association p-value (less or equal) 0.05 with Chi-square test

7. Discussion

7.1 Study 1

7.1.1 Patterns of use of alternative medicine by consumers

The indication from the current study was that females are more frequent consumers of alternative medicine in the pharmacy, health food and Chinese medicine shops in the community setting. This is in agreement with previous studies that majority of those who use alternative medicine had been females in the general population and patients in the healthcare settings in the UK (Chapter 1, Sections 2.3 and Section 2.4). This also agreed with findings that the consultation in clinical practice is mainly attended by female patients (van Witjk *et al*., 1997; Kapur *et al*., 2005). The age distribution of the consumers and prevalent age group of 46-59 years of consumers found using alternative medicine appeared to also fit with the previous findings of users of alternative medicine in the UK (The age group varied from study to study but that appeared to be more of a reflection on the exact nature of the groupings than a marked difference in the predominant age (Chapter 1, Sections 2.3 and Section 2.4)). Apparently, different to the female consumers, an older age group of 60-75 years of male consumers had been more frequent consumers of alternative medicine. This seemed to support the findings of a previous study among patients and another study in the general population in the UK (Murray and Shepherd, 1993; Harrison *et al*., 2004). Therefore, additional findings here in the current study might imply preference of the male consumers and differences in the age distribution of consumers across the health food and Chinese medicine shops in comparison to the pharmacy shops.

While it could be said that the ethnic background of the consumers was mainly white had similarly supported evidence in the previous literature (Bishop and Lewith, 2008), the region has a smaller population of non-white people (Office for National Statistics, www.ons.gov.uk) so this might be expected to have been so. Bishop and Lewith (2008) in their systematic review had also pointed to the complexity of under-representation concerning ethnicity and alternative medicine use being a factor which made general trends difficult to ascertain. However this

finding among consumer population was different findings to the Cappuccio *et al*. (2001) study in the UK.

The fact that herbal remedies and dietary supplements (HS) are sold in health shops more so than other forms of alternative medicine might arguably be the reason for the higher prevalence of use among consumers over the other forms of alternative medicine in this study. However similar evidence was found in other studies carried out among patients in the UK (Featherstone *et al*., 2003; Shakeel *et al*., 2008). The very low prevalence of acupuncture in the health food and pharmacy shops contrary to the finding in the Chinese medicine shops in this study and previous studies in the UK could be because use of alternative medicine was only determined at the time of data collection among consumers. Perhaps this might be an explanation for lack of evidence of use of other forms of alternative medicine in this study compared to previous studies. This is especially with the use of osteopathy that appeared to be very prevalent among the general population and patients in the healthcare settings in the UK. Alternatively there might actually be differences that exist between the health shops and the general population and patient settings in the UK.

The prevalence of nutritional oil use in this study suggested use in line with consistent evidence elsewhere of its most prevalent use in previous findings in the UK (Cappucio *et al*., 2001; Harrison *et al*., 2004; Shakeel *et al*., 2008) and Braun *et al*. (2010) in Australia. The current findings suggested a high prevalent use of glucosamine, valerian products and St John's Wort in this consumer population. The similarity with the Braun *et al*. (2010) study thereby corroborated this evidence of use in the consumer population. Along the same lines, the popular use of evening primrose and garlic similar to previous studies in the UK substantiated differences in use in the UK and Australia. The popular use of echinacea according with the Harrison *et al*. (2004) in the UK and Braun *et al*. (2010) study in Australia supported the findings from the staff in this study. A reason that this was different to the findings of consumers could then be related to the nature of the sample of the consumers in this study. However, another logical explanation for this different finding of low prevalence of echinacea use among the consumers

here could be in relation to the reason given by a member of staff that the sale was seasonal.

That alternative medicine was most commonly used for mental and emotional problems before musculoskeletal related symptoms among consumers was in contrast to the previous studies in the UK. Other disparities in the current findings were in the use of glucosamine and lack of use of osteopathy and reflexology for musculoskeletal problems among the consumers compared to previous findings. This was in addition to the use of St John's Wort and valerian products prevalently for mental and behavioural related problems in this study.

While there was no direct evidence, it might have been possible that the current finding may also have indicated a decline in musculoskeletal related conditions during this period. The data collection having taken place exclusively in the summer could be a reason for the lower use of alternative medicine for musculoskeletal conditions found in this study. The period within the year could not be ascertained from the previous studies of alternative medicine in the literature. On the other hand, similarities had been found with the high use of alternative medicine for depression in this study in 2006 with the threefold rise in incidence of recorded depressive symptoms from 1996 to 2006 and a dip in the incidence of diagnosed depression at this period and no increase in the use of hypnotics between 2000 and 2007 (Rait *et al*., 2009). Interestingly, the need for use of alternative medicine for sleep aid might also be a reflection of an increase in symptoms of insomnia from 1993 to 2007 in the UK (Calem *et al.,* 2012).

In line with that, the findings suggested that the patterns for the indication for use and types of alternative medicine used by consumers were in relation with the patterns of occurrence of medical condition. Use of alternative medicine, mainly for menopausal conditions with the use of evening primrose among the female consumers and age group of 46-59 years, agreed with the patterns of occurrence of menopausal age in women (Palacios *et al*., 2010). Use of alternative medicine for depression, largely among middle-aged female consumers in this study also appeared to match with evidence of the trend in depression in the UK (Rait *et al*., 2009). The use of alternative medicine for cardiovascular related conditions may

be linked to the fact that the all-England statistics show that 32% of men and 30% of women suffer from cardiovascular disease (Health Surveys for England, 2003). Also, the prevalent use of alternative medicine for musculoskeletal condition among the older consumers and females fitted with the pattern seen in clinical evidence (Jordan *et al*., 2007 and 2010). Similarly, while musculoskeletal conditions were the most prevalent indication for using alternative medicine by females, the use for pain was more frequent for use among the male consumers. A clarification that might hold, offered by Jordan *et al*. (2010), was that different age and gender trends were apparent for musculoskeletal conditions across body regions although women had generally higher consultation rates. Obviously, albeit it was for only one consumer, use of alternative medicine for low sperm count for a male made sense. While women do suffer from hair loss, the use of alternative medicine for hair loss and alopecia reported by only male consumers was also not unexpected. This was another connection that has been made between the condition and prevalence with male gender (Kyriakis *et al*., 2009).

The clinical link between insomnia and increased age (Calem *et al*., 2012) was not evident in this study relating to indications for use of alternative medicine. That said the number of consumers across the different age groups was quiet small in terms of being able to make a valid conclusion. As for use of alternative medicine reported for immune boost by only a female consumer, it is very difficult to draw valid conclusions from small differences in small populations. However similar evidence of use for immune boost had also been reported in another study i.e. by only female users of herbal products among the general population in the USA (Kelly *et al.,* 2005). The use of alternative medicine for improving alertness by only males also found in the Kelly *et al.* (2005) study in the USA. However the use for alertness by consumers aged 18-30 years was different to clinical practice which was more likely to involve older adults (van Exel *et al*., 2001; Powell *et al*., 2004).

It was found here that self-recommendation of alternative medicine was one of the most important sources of recommendation of use to consumers, as opposed to different findings in previous studies among the general population and patient group in the UK setting (Chapter 2, Sections 2.3-2.4). The current findings were similar to those in a study of consumers in Australia (Braun *et al*., 2010). Thus

perhaps this supported the notion that the consumer population in the health shops was different from the general population and the patient settings in the UK studies. As for previous studies in the UK, healthcare professionals were found to be a lower source of recommendation of alternative medicine use. The factor that alternative medicine use is not part of routine healthcare within the healthcare setting in the UK was a likely logical explanation for the finding. It was therefore not surprising in the current finding that healthcare professionals were the least mentioned as being a source of recommendations. Perhaps this explains the finding among the consumers in this study to consumers registered in a pharmacy in the Australian study (Braun *et al*., 2010). The main source of recommendation of use of alternative medicine, through friends, replicated findings from previous studies in the UK. However, the current findings showed distinctively that the source, through a family, was the fourth most influential source of recommendation of alternative medicine. Previous studies tended to combine together friend and family sources of recommendation as the main source of recommendation. Another contrast was that the media was also the second highest source among the consumers. Perhaps sources such as advertisements of health shops in the media, internet, magazines and information leaflets provided in the health shops may have had additional impact in the context of the current finding.

7.1.2 Consumers' attitudes to alternative medicine use

The higher priority placed by consumers on effectiveness compared to the safety of alternative medicine was consistent with previous findings in the UK (Lewith *et al*., 2002; Chandola *et al*., 1999). The current finding added to the evidence that actual experience of past effectiveness influenced the use of alternative medicine. The consumers' reasons for using alternative medicine agreed with the dissatisfaction with conventional medicine practice similarly reported in previous studies in the UK (Chapter 2, Section 2.6). The current finding points to lack of effectiveness and also to the evidence that the actual experience of side-effects of conventional medicine being among the reasons for the use of alternative medicine. The priority on effectiveness was pertinent to a difference relating to the staff perspective in this study. A comparable finding was with the priority of the safety rather than effectiveness of alternative medicine in the views sought about

alternative medicine by consumers in this study. Similarly, for a study in the USA, consumers were more interested in safety than efficacy (Nathan *et al*., 2005). This is supported further by another recent study in Australia (Braun *et al*., 2010).
The current study provided evidence that consumers require knowledge about safety, efficacy and how to use alternative medicine. One of the issues arising from the current study was the need to consider current regulation and policy relating to alternative medicine (Chapter 2, Section 2.1.4 and Chapter 4, Section 4.1). Among the points raised was that at the time of this study, it was not mandatory that manufacturers included information on the efficacy, safety or instructions on use on the labels of the products.

The actual availability of alternative medicine has been found not to be a common predictor of behaviour of use of alternative medicine (Furham and Lovett, 2001) despite the fact that it would be generally expected that this would be a direct factor in this population who were accessing alternative medicine directly from health shops. However, this study was in keeping with Furnham and Lovett's work. In addition, this study could be said to be in keeping with the finding that the background of the population was a motivating factor among the non-British consumers in the UK. Lim *et al*. (2005) reported that family tradition was a major factor cited among the users of alternative medicine in Singapore. However, it was shown that the influence of family was also a strong motivation for consumers who are British.

7.1.3 Incidence of adverse outcomes

Evidence of the incidence of potential interactions from herbal remedies and dietary supplement used concurrently with conventional drugs by consumers in health shops was a feature of this study. A major finding was also the underreporting to healthcare professionals of the use of HS by consumers. Conventional drugs used concurrently with herbal remedies or supplements have been implicated in this study as potentially being the cause of hospitalisation (Pirmohamed *et al*., 2004; Davies *et al*., 2009). The risk of toxicity with low therapeutic index digoxin and thyroxin was a possibility in this study, albeit it could not actually be confirmed.

The number of consumers using HS and conventional drugs was lower than that estimated from previous studies in the literature (Peng *et al*., 2004; Taylor *et al*., 2011). The fact that the current study was carried out in the UK might be a reason for the different estimates in the findings. However the current finding could have been due to the population being different from that of the patient focused studies. In addition there was no form of cross reference from e.g. medical notes of the consumers to obtain information on their use of conventional drugs. The present use of alternative medicine determined in this investigation was the only other difference with the previous studies. Also, the consumers tended to be in a hurry so that it was not possible for the researcher to ask all consumers in this investigation. Because of this, another difference compared to previous studies was the incomplete data from consumers in the investigation during the data collection. It was also not certain that every consumer was asked about concurrent use of conventional drugs in the interview that was conducted by the staff in the Chinese shops. Another distinction from the other studies was that consumers purchasing only vitamins and mineral supplements or herbal teas were excluded except where consumers were also using any of the alternative medicine within the scope of this investigation. However there were no potential interactions identified during the analysis. It is also important to point to the possibility that the incidence of potential interaction may be affected by whether the HS and conventional drugs used by the consumers had had any previous documented interactions reported in the literature that was accessed. Also, the incidence of potential interactions could have been underestimated in this investigation because it was impossible to assess potential interactions where consumers could not recollect the specific name of the HS or conventional drugs used.

7.2 Study 2

7.2.1 Patterns of use of alternative medicine by in-patients

A substantially higher prevalence of use of alternative medicine was found in this sample of in-patients than occurred in the general population, patients attending a primary or in-patients in the healthcare setting in the UK (Chapter 2, Section 2.3

and 2.4; Chapter 5, Section 5.1). Interestingly, the overall prevalence of use of alternative medicine at some point in life in this study was exactly comparable to a recent study conducted among patients on surgical wards in Australia (Shorofi and Arbon, 2010).

The prevalence of use of alternative medicine among the in-patients within one month, to be more exact, within four weeks to the day, of admission in hospital, has been confirmed with this study. This prevalence of use of alternative medicine was similar to that found for the out-patients in the primary healthcare setting (Featherstone *et al*., 2003). The current findings supported the use of alternative medicine during admission in hospital similar to previous findings for in-patients (Lewith *et al*., 2001). However, the findings on past use of alternative medicine among the in-patients was in contrast to the work of Lewith *et al*. (2001) who only found current use for their population of cancer in-patients. The within one-month finding agreed also with the increase in prevalence of use of alternative medicine with past use noted from the literature review (Chapter 2, Section 2.5; Chapter 5, Section 5.1).

This finding supported the suggestion by Harris and Ress (2000) that studies that include both alternative therapies and alternative medicine products show higher prevalence of use of alternative medicine. In addition, the current finding established the list of the types of alternative medicine used by the in-patients without restriction and in doing so increased the prevalence of the types of alternative medicine used (Section 6.2.1.3). Fundamentally, the face-to-face interview method used also ensured that the data was from the exact population. This was arguably the best confirmation of the prevalence of use of alternative medicine by the population of in-patients (Chapter 3, Section 3.3.2). Another relevant issue around this was that the current finding agreed with the view expressed in the methodology that studies that use interviews are likely to report a higher prevalence of use of alternative medicine studies.

Females were predominant users of alternative medicine in this sample of in-patients as found with other previous studies among the general population and patients in the UK (Chapter 2, Section 2.3 and 2.4) and consumers in this study

(Section 7.1.1). However, while there was an association, technically it was not quite statistically significant for the level of confidence chosen for this study (Chapter 3, Section 3.4.1.2). It was logical to think that the lack of association might be due to a smaller sample size being used than for that by Shakeel *et al*. (2008). However, statistically significant associations were actually found from comparable sample sizes (Murray and Shepherd, 1993; Chandola *et al*., 1999). However these latter studies involved patients attending primary care in the UK.

A relevant observation was that the difference between the percentages for each gender of the in-patients using alternative medicine was not more than 5% in this study. This was different from the wider gap in previous studies in which statistically significant association had been found (Shakeel *et al*., 2008; Murray and Shepherd, 1993; Chandola *et al*., 1999; Featherstone *et al*., 2003). There was an exceptionally small difference in percentage between the female (74.8%) and male (74.3%) in-patients using alternative medicine over the two years of this investigation. However, the finding of this study had parallels with another study (Adusumulli *et al*., 2004). This was a study in the US that was comparable to this study. However, the focus was on a larger sample of surgical patients in a hospital similar to Shakeel *et al*. (2008). However, similarly to this study there had been no restrictions on the types of alternative medicine used and the data collection on use of herbal medicine included that used with the previous month (Adusumulli *et al*., 2004). The use of alternative medicine determined among the in-patients in this study in the month before and currently in hospital among the in-patients being dissimilar to the study of Shakeel *et al*. (2008). This appeared to have been influenced with the types of alternative medicine used in either gender (Chapter 6, Section 6.2.1.3). Overall the smaller gap between the gender of the in-patients and use of alternative medicine compared to other studies could be said to be as a result of the types of alternative medicine used and the fact that in this study use in the month of admission was collected. This small difference in the gap between the percentage of the male and female in-patients using alternative medicine found in this study could very well be why a statistically significant association was not established between gender and use of alternative medicine.

The highest use of alternative medicine among the oldest age group above 60 years in this in-patient study was contrary to the pattern for middle age users among the general population and patients in primary care settings in the literature or the previous study among in-patients in the UK (Shakeel *et al*., 2008) and consumers in this study. It was very logical that an increase in age probably suggested a tendency towards use of alternative medicine with in-patients in this study. The possibility of difficulty in the recollection of past use of alternative medicine was another possible explanation for a decline in the percentage of use of alternative medicine in the past with older age. This validates an increase in number and percentage of in-patients using alternative medicine among the oldest age above 60 years within one month prior to and currently in hospital (i.e., very recent rather than difficult-to-recollect past). This has been substantiated with the two different categories, i.e., three- and five- age groups of the in-patients in the analysis that demonstrated different peaks with respect to in-patients using alternative medicine. However, use of alternative medicine was still higher among the older in-patients. Also, as speculated for the gender of in-patients, the gaps in the percentage between the age groups of in-patients using alternative medicine perhaps might have implications. In the results at least a 3% difference is seen between the age group of the in-patients using alternative medicine and a statistically significant association was only within one year and two years respectively. On the other hand where no statistically significant association was found, the difference in percentage of in-patients using alternative medicine between the age groups of the in-patients using alternative medicine was less than 3%. It seemed evident that the use over the age group of the in-patients was also a consequence of the types of alternative medicine used (Chapter 6, Section 6.2.1.3) and a disparity with the study of Shakeel *et al*. (2008).

Use of alternative medicine increased with increasing level of education as for the previous finding among in-patients in the UK (Shakeel *et al*., 2008). Further to that, the current investigation showed that the highest percentage of in-patients using alternative medicine was among the in-patients with at least a university degree. The types of alternative medicine also influenced the distribution of the in-patients using alternative medicine (Chapter 6, Section 6.2.1.3). However it appeared that most types of alternative medicine were used by in-patients mostly with college

related level education. An alternative reason could be that more in-patients were using at least one alternative medicine among the in-patients with higher level of education. The evidence on which group was the highest user of alternative medicine between the in-patients with college and degree level of education was therefore less conclusive.

A high prevalence of use of alternative medicine among the in-patients of British background agreed with previous studies in the literature and consumers in this study (Section 7.1.1). However the issue of under-representation also makes the current finding less conclusive for other ethnic backgrounds or nationalities of in-patients. A further observation was that the under-representation of other ethnic backgrounds also probably impacted on lack of significant statistical association in this study. This is possibly the same as for the finding in two studies in the US (Astin, 1998; Egede *et al*., 2002) differently to another study (Adusumilli *et al*., 2004).

The current finding was confirmatory of the higher prevalence of use of alternative medicine among surgical in-patients in the UK reported by Shakeel *et al*. (2008), in Australia (Shorofi and Arbon, 2010) and in the USA (Adusumulli *et al*., 2004). This supported lower prevalence of use in the general medicine wards in a Canadian teaching hospital (Cook *et al*., 2002). However, the prevalence of use in this study was substantially higher than reported in the Canadian study. In addition, this finding showed a higher prevalence of use among patients in the orthopaedics and trauma wards and suggested highest use among the in-patients currently in hospital. As opposed to the other three speciality wards i.e., orthopaedics and trauma, general surgery and general medicine, the prevalence of use of alternative medicine was more difficult to ascertain in the gynaecology and elderly specialities. This was considering that the sample size was far lower in comparison to the estimated minimum sample size of 87 (Chapter 3, Section 3.5.3). The additional challenges involved in the data collection from the in-patients by the researcher have already been set out in the Methods (Chapter 5, Section 5.2).

The higher prevalence of use of herbal remedies or dietary supplements (HS) than other forms of alternative medicine in this sample of in-patients agreed with the previous study in the UK (Shakeel *et al*., 2008) and consumers in this study (Section 7.1.1). However, the reporting of more than 50 different types of HS and 15 other forms of alternative medicine was far more than the listed types of alternative medicine that had been reported by Shakeel *et al*. (2008) or in other previous studies in the UK. This was despite not all in-patients being able to recall the names. To reiterate, this supported that the disparity might be due to the scope of alternative medicine use in this investigation. Another important reason would be obtaining the list and lack of restriction of the types used during data collection in this study.

Nutritional oil being the most commonly used alternative medicine for this sample of in-patients agreed with the previous studies in the UK and consumers in this study. However, the use of glucosamine and valerian products again were more popular similar to the findings of the consumers. Also, the findings showed a higher number (17 in-patients) had used glucosamine among the in-patients in general surgery as opposed to only three cases reported by Shakeel *et al*. (2008). Overall, the use of garlic was less popular in this study than in Shakeel's but there was a considerably higher number (18 in-patients) using it in general surgery. Similarly St John's Wort was among the top ten most prevalent HS used by the in-patients and its use was a lot more popular than ginseng differently to Shakeel *et al*. (2008). Further distinctions were for example Brewer's Yeast, milk thistle, rhubarb pill were found to be used in this investigation contrary to previous findings (Shakeel *et al*., 2008). These particular HS were important in the context of the demographic distribution of the in-patients using alternative medicine in this study.

The prevalent use of massage mostly in the general surgery in this study also differed from the previous finding among the in-patients (Shakeel *et al*., 2008). Its use in non-health related conditions may be the reason for the current finding. However, the same argument might go for aromatherapy that was similarly the second most popular used among this sample of in-patients. The use of acupuncture was more popular in general surgery as reported in the Shakeel

study (2008). However there was a higher prevalence of use of reflexology than osteopathy in this sample of in-patients. The popularity of homeopathy was similar to the previous study in the UK (Shakeel *et al*., 2008). At the same time this was another difference between this UK study and the Australian study (Shorofi and Arbon, 2010).

For the in-patients the main indication for using alternative medicine was for musculoskeletal problems followed by mental and behavioural related condition. This was similar to previous studies in the UK but different to the study here for consumers in this study (Section 7.1.1). An additional finding was the use of other forms of alternative medicine including Alexander techniques and Bowen therapy for musculoskeletal related issues by in-patients. The number of in-patients using glucosamine was also distinctively higher than reported previously (Shakeel *et al*., 2008). In addition there was a difference in the use of alternative medicine for respiratory related conditions compared to obstetrics and gynaecology even among in-patients in the general surgery in this study. Also, the use of alternative medicine for endocrine related conditions by in-patients was similar to the consumers. This aspect of alternative medicine use did not appear to have been covered in the Shakeel *et al*. (2008) work. However, this was by very few in-patients, again possibly confirming that less use was simply a reflection of the smaller sample. Another difference in the current study was that homeopathic remedies were the most used alternative medicine for gastrointestinal conditions as opposed to senna in the Shakeel et al. (2006) study.

Some of the less common uses of alternative medicine in the current study were of concern. This was due to the potential seriousness of the nature of these conditions and in relation to the vulnerability type of population. These conditions were use for recovery in post mastectomy, paralysis, use prior to surgery, anaemia, detoxifying, boosting of immunity, and anxiety by in-patients prior to being in hospital. Other indications of alternative medicine like use for serious health conditions kidney stones would also be concern.

The use of alternative medicine for musculoskeletal related conditions and cardiovascular related conditions being higher among the male in-patients was

similar to the previous findings among consumers in this study (Chapter 6, Sections 6.1.3). The comparison with the pattern of occurrence had been seen as was for the consumers in this study (Section 7.1.1). For example use of alternative medicine for menopausal conditions among the female in-patients. This was consistent to the finding among the consumers and the pattern of occurrence of the condition (Section 7.1.1). It was also sensible that use for musculoskeletal related condition was more common among the older in-patients similarly to the finding of the consumers. In addition it was very plausible that the high use among in-patients was primarily in the orthopaedics and trauma speciality and that use for obstetrics and gynaecology was only in the gynaecology speciality. In the current study the lack of use for obstetrics and gynaecology in the elderly speciality would be very reasonable. Similarly, given the types of conditions being treated in general medicine, it was reasonable that there were more in-patients in this speciality that were using alternative medicine to boost immunity.

Self-recommendation was similarly a source of recommendation of alternative medicine to in-patients (Section 7.1.1). However, this was a lower source of recommendation among the in-patients compared to the consumers. This might perhaps have been because that, already having had advice from healthcare professionals, they might have been less likely to self-medicate. This also fitted with healthcare professionals being more involved in use of alternative medicine among the in-patients. However, while this was contrary to previous work (Shakeel *et al*., 2008), a key point could be that the type of population might logically be the reason for more involvement of healthcare professionals than non-healthcare professionals compared to the consumers in this study. ‘A friend’ was again the main source of recommendation among the in-patients, similarly to consumers and previous studies. However, the current findings were distinctive from the previous studies. For example, for the in-patients’ the source through a family was the second most influential source of recommendation of alternative medicine among the in-patients. Another different finding was the importance of the influence of media, this being less of a source of recommendation than for the consumers.

The substantial underreporting of use of alternative medicine to healthcare professionals at the time of admission in hospital by in-patients was established in

this study. The current study added evidence on lack of documentation of alternative medicine use in medical records. This was consistent but lower compared to the similar finding of a Cockayne *et al*. (2005) study in Australia in the literature (Chapter 5, Section 5.1.1). Asking about use of alternative medicine among the in-patients was the most given reason for disclosure of use to healthcare professional (Vickers, *et al*., 2006). It was found in this study likewise that this was a reason for not disclosing use to healthcare professionals among the in-patients in the UK. This was in contrast to the only study found which had reported reasons for disclosure in the UK (Vickers, *et al*., 2006). Another very striking finding was issues surrounding the in-patients not considering alternative medicine as medicine being a reason for non-disclosure of use of alternative medicine that quite interestingly was not reported in the Vickers *et al.* study in the UK or the Robinson and McGrail (2004) systematic review. This study also showed a rationale to ask about current use of alternative medicine and previous use of alternative medicine among in-patients. Other additional reasons such as bringing alternative medicine into hospital, not being on the list of medicine and disclosure during pre-assessment are important findings essential to this type of population. The attitudes of the healthcare professionals were not the most important reason in this investigation, but the consistency supported this being a common reason (Robinson and McGrail, 2004; Vickers *et al*., 2006). The finding also suggested that the good attitudes of healthcare professionals might be a useful factor in improving volunteering of use of alternative medicine in the in-patient population. Robinson and McGrail (2004) suggested that in their work there was insufficient information to link demographic properties to the level of disclosure. The current finding would be the first identification of this in the UK. Similar findings in this study have improved this area like previous studies reported in other countries (Chenglong *et al*., 2009; Kennedy *et al*., 2008; Robinson and McGrail, 2004).

7.2.2 In-patients' attitudes to alternative medicine

The findings confirmed that the recommendation of use of alternative medicine through non-healthcare sources was the strongest influence of alternative medicine use in the in-patient population. This conflicted with the Furnham &

Forey (1994) suggestion that recommendation was not a strong predictor of use of alternative medicine. It also showed some deviation in priority with the findings of consumers in this study (Section 7.1.2). A further finding was the continued relevance of recommendations of use of alternative medicine in the attitudes to alternative medicine.

The finding that, for in-patients, effectiveness of alternative medicine was much more important than its safety was consistent with the previous finding among the consumers (Section 7.1.2). The current finding added strength to the notion that the experience of effectiveness of alternative medicine was an important reason for the use of alternative medicine. Concerns about safety of alternative medicine had also been shown to be reasons for not using or considering use. It was important that in the current findings had confirmed that the in-patients experienced side-effects and potential interactions as the reasons for the perceptions. However these had not been reasons for not using or considering use of alternative medicine.

The consideration of future use of alternative medicine among the in-patients supported further the different prevalence of use of alternative medicine at different times in the in-patient population (Section 7.2.1). This was still higher than the prevalence of use of alternative medicine in any of the previous studies in the literature among the general populations and patients in the UK. This again substantiated higher prevalence of use of alternative medicine among the in-patients. The effectiveness of alternative medicine being the main reason for considering future use before recommendation of use of alternative was consistent with a study among patients attending a primary healthcare setting in the UK (Chandola *et al*., 1999). The current finding further suggested this to be a disparity with the reasons for use of alternative medicine. In addition other distinctions were established between the reasons for use and considerations for future use of alternative medicine. Among the obvious was that, only for a very few, personal experience of effectiveness influenced consideration of future use of alternative medicine. This was unexpected in that this had been a major reason for using alternative medicine, views about alternative medicine and the in-patients' perception of effectiveness.

Lack of knowledge of alternative medicine would be expected because alternative medicine is not being the routine practice within the main healthcare system in the UK. Nevertheless the extent of the prevalence of use of alternative medicine and consideration of future use of alternative medicine among the in-patients made the finding very important. This was especially so given that lack of knowledge was clearly in the perceptions of effectiveness, side-effects and potential interactions of alternative medicine.

There was agreement with a previous finding of availability and cost of alternative medicine being linked with the behaviour of use and possibly less predictive of behaviour of use alternative medicine (Furnham and Lovett, 2001). However, the current finding established that availability of alternative medicine was a reason for use of alternative medicine in contrast to the finding of the consumers in this study. In addition it has been found to be a determining factor for the in-patients' perceptions of effectiveness, side-effects and potential interactions of alternative medicine.

The extensive comparison with conventional medicine in the current finding was at odds with the experience of the Shorofi and Arbon's (2010) study in Australia. It was apparent that the in-patients in this study were not being reluctant to compare with conventional medicine. This current study having been carried out in the UK might be an explanation. Another important explanation that was made obvious would be the use of open questions in this study. This was why it was possible to identify the reasons among the in-patients that had provided a "do not know" response. The failings through lack of effectiveness, side-effects, lack of availability of conventional medicine were important issues that should be of concern to the current healthcare practice. The current finding among the in-patients was in agreement with Furnham and Smith (1988) who found that rather than there being a belief that conventional medicine was itself ineffective, it was that patients who chose alternative medicine may have done so because of bad experiences with conventional medicine. However the finding suggested that this was about bad experiences from conventional medical practices, rather than the actual medical practitioner. In addition the findings suggested that the in-patients

might be more concerned about the safety of conventional medicine rather than being sceptical of its effectiveness.

An in-depth insight of the vast number of issues had come from examining in-patients' attitudes to alternative medicine through the open questions used. An attempt has been made to discuss the most important obvious findings in the results and relevant findings have come up in this discussion. Therefore, it is possible that the less frequently occurring issues that were not raised but identified might be noticed more in a larger study. Also, the findings showed that the contents of the categories were not entirely homogeneous. This was equally important for the reporting of the contents of the categories in the results. The categories could be developed into a structured quantitative questionnaire in future studies to enable further statistical analysis to be carried out.

The current finding suggested differences in the demography of the in-patients and their attitudes to alternative medicine. A disparity was particularly apparent between the male and female in-patients. The findings could also be developed into a structured quantitative questionnaire in future studies to enable further statistical analysis to be carried out.

7.2.3 Incidence of possible adverse outcomes from alternative medicine used

The current findings suggested a substantial occurrence of possible adverse effects to alternative medicine used among the in-patients and that this was currently overlooked or underestimated. The current extent of monitoring of adverse effects among the in-patients should be of concern. Less than a quarter of the in-patients in this study had reported the use of alternative medicine to a healthcare professional (Chapter 6, Section 6.2.1.6). In addition, of these, only five in-patients had disclosed the experience of side-effects to a healthcare professional and only two of the reports were identified documented in the medical case reports.

There had been no reported UK survey studies in which potential interactions between herbal remedies/ dietary supplements had been examined (Chapter 5,

Section 5.1). Hence no direct comparison could be made with the findings of the current study. However, in this UK study the findings showed that the incidence of potential interactions between herbal remedies or dietary supplements (HS) and conventional drugs was higher than it had seemed from other surveys in the reviewed literature (Peng *et al*., 2004; Taylor *et al*., 2011; Goldstein *et al*., 2007). The number of instances with documented clinical evidence was also more substantial compared to these previous studies. The possible explanation for the disparity might lie with this current study in the UK or the time of this study. A potential explanation was that the in-patients in this study were using these HS with conventional drugs for which potential interactions had been reported. It might also have been that more potential interactions have been identified from the literature in this study that might have been missed in the previous studies.

On the other hand it was possible that the incidence of potential interactions and experience of adverse reactions of alternative medicine used by in-patients might still have been underestimated in this study. The poor recall of the names of HS and conventional drugs in the past were reasons for the inability to assess potential interactions compared to recent use of alternative medicine within one month of admission. Another reason could be the identification of potential interactions in the literature. There was no guarantee of this because documentation of potential interactions was still a challenge in this field of alternative medicine. Importantly, the contents could also not be obtained or the actual name was not available in the case of Chinese herbs used by in-patients and thus was excluded from the estimate.

Likewise, there had been no similar surveys or studies of direct patient reporting of adverse reactions of alternative medicine in a clinical setting in the UK (Chapter 5, Section 5.1).The current evidence indicated that a considerable number of the in-patients experienced side-effects caused by the alternative medicine. The side-effects from alternative medicine used that were without literature precedent might therefore suggest a new event or a rare side-effect. For example, no evidence was found for Alexander having caused syncope. There was also no documented evidence of pain or soreness to reflexology, even though similar reactions were evident in the literature for other forms of alternative medicine that utilised physical

manipulation. Also a case of flu that was found in this study was not confirmed in the literature. Only a case of seizure was reported with acupuncture in a previous systematic review more than a decade ago from an acupuncturist (Norheim & Fønnebø, 1996). A vast number of reactions had been reported but there was only 1 case of epileptic seizure from 197 acupuncturist reporting reaction of 403 patients and within the same study were also reported 140 cases of fainting and 33 cases of pneumothorax. Another, more recent, second study had included reports of fainting but had excluded seizure (Bensoussan *et al*., 2000). Common reactions to massage in relation to pain were consistent with the literature (Ernst, 2003), but the reactions of haemoptysis and increase urination were not confirmed. There had been documented evidence of emboli associated with massage, but not of haemoptysis (Ernst, 2003). There was no literature evidence of the case of Devil's Claw leading to onset of the medical condition hiatus hernia. Other gastrointestinal symptoms were documented in the literature, but no case was found of hiatus hernia as described by the case of the in-patient in this study. There was no evidence that St John's Wort could increase menstruation or period as described by the in-patient in this study. Increased dysmenorrhoea had been reported (Knuppell and Linde, 2004) though. Adding, to that, there was evidence of breakthrough bleed linked to concurrent use of St John's Wort and contraceptives and this was a very logical reason to justify the in-patient reported reactions. This was similar to the case of the reported reaction to black cohosh in this study that was not found in the literature. A logical explanation was that it was used to treat menopausal symptoms. This perhaps results in extension of mood disorders, a side-effect mentioned in the literature. It was however a case of associated nightmares that was reported by the in-patient in this study.

The current findings supported experiences of mostly acute onset of adverse reactions to alternative medicine used. However the finding supports evidence of delayed onset of adverse reactions from Chinese herbs (Meyer *et al*., 2000). The syncope with Chinese herbs and vomiting with dried herbal leaves however could not to be confirmed by existing literature.

The finding is in line with more adverse reactions being identified with more exposure of the population (Blenkinsopp *et al*., 2007). However, the current finding

showed also that valerian products were not the most used but were reported to have given rise to the most side-effect reactions. The finding supported risk of sedation of valerian in perioperative patient care (Ang-Lee *et al*., 2001). This is especially so given the previous finding of high prevalence of use of valerian among in-patients in general surgery in this study.

Vitamin and mineral supplements and herbal teas were not included in the scope of alternative medicine used (Chapter 3, Section 3.3.1.1). However use of vitamins and mineral supplements was collected from the in-patients if the individual was using at least one of any alternative medicine in the scope of the study. It was not known if that was solely the reason that potential interactions were found between vitamins and minerals and concurrent use with HS. This was as opposed to potential interactions between conventional drugs and vitamins and minerals that were only reported in the previous studies (Peng *et al*., 2004; Taylor *et al*., 2011; Goldstein *et al*., 2007). Similarly in this study there were substantial interactions identified between herbal teas and conventional drugs.

It was possible that there being more users of alternative medicine was the reason that more female in-patients had potential interactions and experienced side-effect reactions. This possibility was in line with evidence from similar studies with conventional drugs (Rademaker, 2001). There was conflicting evidence that age may not be a predisposing factor to adverse reactions (Hajjar *et al*., 2003). However, like Doubova *et al*. (2007), there were a higher number of in-patients above 60 years having side-effects and potential interactions. However the in-patients of 40-60 years of age had the highest percentage and number of side-effect reactions. Another possible relevant point was that the current finding supported the notion of prior adverse drug reaction being another potential risk factor for adverse drug reactions to conventional drugs (Hajjar *et al*., 2003). The average number of drugs used by the in-patients also possibly supported association with drug-drug interactions (Hajjar *et al*., 2003). Finally, in the context of alignment of findings of this study with studies already in the literature, the evidence of statistically significant association between potential interactions with cardiovascular and digestive diseases could support the evidence of the increased risk of drug-disease interaction (Doubova *et al*., 2007).

7.3 Limitations of the Study

The major limitation of this study was that the findings may not be generalised to the entire population of consumers in health shops in the community setting and in-patients in the secondary healthcare setting. The sample size and convenience sample used may limit the generalisation of the study findings to the entire population. This would apply to any such studies. However, in future studies this might be less of an issue if larger sample sizes were used and as much as possible was done to try to ensure the representative nature of the population. For example, the latter point might be addressed by using a random sample rather than a convenience sample. Also, having a larger sample would, in itself, improve the representative nature. The recollection or recall bias of the use of alternative medicine, conventional drugs used concurrently and experience of adverse reactions among the consumers and in-patients could also be limitations to the finding of this study. Other potential sources of error are human error that might occur from the researcher. This may arise, for example, during the process of data collection and analysis of the data in this study. The identification and interpretation of the categorisation of the responses to the open questions in this study was another possible source of error. This might well limit the reproducibility of the same categories from the analysis, particularly given the large amount of data involved and the fact that it was carried out by one researcher.

7.4 Conclusion

Overall, while many of the findings in the current study were in keeping with previous knowledge and lent support to what had gone on before, there were new findings and findings that appeared to be at odds with existing knowledge. The latter two cases in particular should demand attention.

8. Conclusions

8.1 Conclusion

Before this study there was no published evidence of research of how or why consumers in health shops in the community setting use alternative medicine and little was known among in-patients in secondary healthcare settings in England. The investigations of alternative medicine use carried out in this study have provided the knowledge of the patterns of use of alternative medicine and attitudes to alternative medicine and in addition examined incidence of possible adverse outcomes of the alternative medicine used by a sample of consumers purchasing alternative medicine in health shops in the community setting and in-patients in a secondary healthcare setting within the North East of England.

This study has provided a wealth of useful information related to the use of alternative medicine in the two important population settings. However it is still very important to identify the main key findings which should be communicated and to prioritise the areas where follow up work would be most valuable (an in-depth discussion and comparison of the investigations has been presented in the Chapter 7).

8.2 Key findings

The key findings of the first aspect of the aim of the study which was the patterns of use of alternative medicine examined established that the majority of the consumers purchasing alternative medicine in the health shops within the North East of England were mainly white British and mostly female. Furthermore the predominant age of the consumers were mid-age group of 46-59 years, similarly to previous published knowledge among the general population and patient studies in the UK. However, an interesting insight was that probably male consumers could have preference for health food shops and Chinese medicine shops and different age group distribution compared to pharmacy shops. An essential finding also was the disparity in the prevalent types of alternative medicine used by the consumers to previous studies in the general population and patients. Also, a vital

outcome was the most common use of alternative medicine for emotional and behavioural related conditions rather than musculoskeletal contrasting previously reported studies on the general population and patients. A finding that 'self' was one of main sources of recommendation of use of alternative medicine among consumers, yet again this being different from previous general population and patient studies was established. The second aspect of the outlined aim in which the consumers' attitudes to alternative medicine was examined provided further understanding that could be predictors of use of alternative medicine in this population. The effectiveness of alternative medicine has emerged as the main factor and much more important than its safety in their choice of alternative medicine. This importantly was one of the main differences of the data collected directly from the consumers to the perceptions of staff in the health shops. A point was that this might explain the reason for the consistency of a higher concern for safety by the consumers and the perceptions of the staff. It was interesting that availability of alternative medicine was not among the reasons for use of alternative medicine which was another distinction to the perceptions of the staff. The speculation is that this could also be a predictor of use having being revealed as part of the views about alternative medicine that was sought by consumers. Another very important finding was the patterns of use of alternative medicine by consumers examined pointed to under-reporting of concurrent use of herbal remedies and dietary supplements with conventional drugs used by consumers to healthcare professionals. The potential for incidence of adverse outcomes arising from possible potential interactions from combinations of herbal remedies or dietary supplements with conventional drugs used by consumers has been highlighted by the findings of this study.

In the second investigation carried out in this study, a higher prevalence of use of alternative medicine by in-patients in the secondary healthcare setting in North East of England was found than that previously established in the general population or patients and most essentially in the same population setting. In addition the prevalence of use of alternative medicine previously unknown prior to and during admission in hospital among in-patients and in other speciality wards was revealed. Another key finding was that contrary to what was known use of alternative medicine steadily increased with increase in age and higher percentage

of users were among patients with higher degree level of education. There was also an insight that the demographic distributions of the in-patients using alternative medicine was influenced by the types of alternative medicine used and deviations in the conditions indicated for using alternative medicine. The current evidence also showed a disparity in the commonly used alternative medicine from previous knowledge. Self-recommendation has now been shown among the main source of recommendation to use of alternative medicine by the in-patients and contrary to what had been documented in a previous study in Scotland that healthcare professionals were less influencing factor in recommendation of use of alternative medicine in this part of England. In this study the examined in-patients' attitudes to alternative medicine provided further understanding of use that could be predictors of use of alternative medicine being mainly through recommendation outside the conventional setting or healthcare professionals. Their perception of effectiveness of alternative medicine was a stronger influence than perception of safety of alternative medicine on the use of alternative medicine. Another important insight was that availability and trial and error of alternative medicine were determinants of perceptions of effectiveness, side-effects and potential interaction of alternative medicine. The in-patients' attitudes to alternative medicine may also from what has been seen in the data obtained in this study differ by the characteristics.

An important relevant dimension of the patterns of use of alternative medicine was that during hospitalisation, there was a considerable lack of disclosure of alternative medicine use by in-patients to healthcare professionals. Furthermore, a variety of reasons for that was found during the study. It was important as well that the incidence of adverse outcomes revealed that a considerable number among the in-patients using concurrently have had potential interactions between herbal remedies or dietary supplements with conventional drugs. It was also possible to gain knowledge of in-patients' experiences of side-effects and which could be new documented side-effects of alternative medicine and side-effects had not been recorded in the medical records. The evidence in this study of potential interactions and side-effects reported by the in-patients were therefore also very important from the findings.

8.3 Recommendations for Future Research, Practice and Policy

This investigation of the use of alternative medicine among consumers in health shops in the North East of England was the earliest work carried out in the research programme in 2006. The new proposal had been to end the 'sell through' of unlicensed herbal remedies legally in the UK through the new reforms under the Directive 2004/24/EC in 2011 (MHRA, 2011; previous discussion in Section 2.1.4). However the current legislation on alternative medicine still does not ensure the regulation of the sales of all types and practitioners of alternative medicine. It would certainly therefore be useful to assess if time and the new reforms has had an impact on use by consumers. Also, a follow up with a larger study would be desirable to confirm the difference between the consumers purchasing alternative medicine in the pharmacy shops compared to health food shops and Chinese medicine shops. Future work could also address the disparities of perceptions between staff and consumers. The evidence also that potential interactions from combination of herbal remedies or dietary supplements with conventional drugs used by consumers may have gone unnoticed to healthcare professionals is of concern. The desire for knowledge about alternative medicine by the consumers was obtained in this study. It is therefore perhaps essential at this point to suggest there might be need to set up a scheme to educate consumers in the health shops. In particular there needs to be an awareness to encourage discussion of all use of alternative medicine with healthcare professionals. This might be of additional benefit in the overall use of alternative medicine by the public.

In the secondary healthcare setting, as discussed, interesting aspects of use of alternative medicine and effect of use with gender, age, education, specialities were recognised. Also it was fundamental that by not setting a prescribed list of alternative medicine much more use was revealed. Ideally a system of reporting of prevalence of use of alternative medicine that is all inclusive is recommended in future studies. Overall though perhaps the most important point for immediate action was the very much under-reported use and the associated safety health risks from this. There is a need to find ways round this because of the risks of drug interactions and unreported suspected adverse reactions. It is essential for there to be prudent monitoring among patients and there is a need for education to

improve communications of use and adverse reactions reporting by patients. Clearly, educating patients about the perception of alternative medicine as medicines in practice could enhance reporting and the need for in-patients to bring all alternative medicine that is being used into hospital needs to be addressed. Education by way of providing information on leaflets to patients in hospital when taking drug history or pick-up of prescriptions in the pharmacy might be worth considering in ensuring the balance between safety and effectiveness of patients' use of alternative medicine. It was insightful from the report of side-effects that this similar approach of research that has been used for conventional drugs could be beneficial to continue to improve the safety knowledge of adverse reactions of alternative medicine. The implication of quite a number of the in-patients with previously known drug reaction or allergy reporting side-effects from alternative medicine used is not known. Future research would therefore be beneficial to find if there is a correlation between patients with known drug reactions or allergies and experiences of adverse reactions to alternative medicine.

It needs to be emphasised that in the current study both efficacy and safety of alternative medicine played a significant role in the choice of use of alternative medicine. The interesting finding further was the connection between availability of alternative medicine with perceptions of effectiveness, side-effects and potential interactions revealed among the in-patients. The issues arising from this study clearly implied a need for an open platform of debate by policy makers, healthcare practitioners and alternative medicine providers to work together to educate on reporting of use and documenting by healthcare practitioners, and to provide more information to the public. It is essential to get across the message that the availability of alternative medicine does not necessarily infer efficacy or safety of alternative medicine. It would also be worthwhile for future studies to document conventional drugs that are implicated for causing lack of effectiveness and side-effects thereby resulting in use of alternative medicine.

Further studies would definitely be beneficial in confirming the generalisation of some of the findings and for findings to remain up to date as populations and attitudes change. Also discussed above, one very striking feature of the consumers of alternative medicine in health shops study was that most users and

the in-patients covered in this study were white British. Since that time the population in the North East of England has not changed that much (more than 93 percent residents are still white British (Office for National Statistics, www.ons.gov.uk)). Further work might therefore be more insightful focusing on other represented ethnicity to provide a robust understanding of the use of alternative medicine in the two populations.

In conclusion, comprehensive evidence and new knowledge of how and why consumers and in-patients use alternative medicine and other aspects of incidence of possible adverse outcomes has been documented in this study. As stated from the outset the two populations settings were prioritised due to the shortage of knowledge in published studies and professional interest that came with it. Accordingly, the substantial prospects for future research are that even more could be learnt from the outcomes of the current study and the vital recommendations to practice and policy.

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APPENDICES

University of Sunderland

ETHICS COMMITTEE

APPLICATION REVIEW FORM

Application Number: 2007.38b

Project Title: Patient attitudes to alternative medicines

CONDITIONS: These conditions must be completed before you commence the work.

APPROVED

RECOMMENDATIONS: The committee recommends the following are completed before the work commences.

- Participant documentation could have university logo on it etc.

Note: If you wish to make any significant changes to this approved protocol, you must re-apply for ethical review.

Ethics Chairperson

NHS

National Research Ethics Service

County Durham & Tees Valley 2 Research Ethics Committee

The Tatchell Centre
University Hospital of North Tees
Piperknowle Road
Stockton-on-Tees
TS19 8PE

Telephone: 01642 624164
Facsimile: 01642 624164
Email: leigh.pollard@nhs.net

2 October 2008

Miss Nusirat Olatundun/ NO Bello
Postgraduate Academic Assistant
University of Sunderland
Pharmacy, School of Health, Natural & Social Science
Fleming Building, City Campus
Sunderland SR1 3SD

Dear Nusirat

Full title of study: **Use, attitudes, and the implications of using alternative medicine in secondary care patients**

REC reference number: **08/H0908/43**

Thank you for your recent letter containing the double sided version of the approved consent form (Version 5.6 dated 24 July 2008) and confirmation of management approval.

Please accept this letter as confirmation of receipt of the above as per the 'favourable opinion with conditions' letter issued on 31 July 2008.

Regards

Yours sincerely

Leigh Pollard

Leigh Pollard
Co-Ordinator

NHS

National Research Ethics Service

County Durham & Tees Valley 2 Research Ethics Committee
Professorial Unit of Surgery
University Hospital of North Tees
Piperknowle Road
Stockton-on-Tees
TS19 8PE

Telephone: 01642 624164
Facsimile: 01642 624164

31 July 2008

Miss Nusirat Olatundun/ NO Bello
Postgraduate Academic Assistant
University of Sunderland
Pharmacy, School of Health Natural and SocialScience
Fleming Building, City Campus
Sunderland
SR1 3SD

Dear Miss Bello

Full title of study: **Use, attitudes, and the implications of using alternative medicine in secondary care patients**
REC reference number: **08/H0908/43**

Thank you for your letter of , responding to the Committee's request for further information on the above research and submitted revised documentation, subject to the conditions specified below.

The further information has been considered on behalf of the Committee by the Chair.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised.

Ethical review of research sites

The Committee has designated this study as exempt from site-specific assessment (SSA. There is no requirement for [other] Local Research Ethics Committees to be informed or for site-specific assessment to be carried out at each site.

Conditions of the favourable opinion

The favourable opinion is subject to the following conditions being met prior to the start of the study.

The consent form be reproduced as a double sided document to ensure that the signatures do not become detached from the main document **(Please could you send a copy of the final version of the consent form for our records)**

NHS
National Research Ethics Service
County Durham & Tees Valley 2 Research Ethics Committee
Professorial Unit of Surgery
University Hospital of North Tees
Piperknowle Road
Stockton-on-Tees
TS19 8PE

Telephone: 01642 624164
Facsimile: 01642 624164

17 September 2007

Miss Nusirat Olatundun/ N.O Bello
Postgraduate Academic Assistant
University of Sunderland
Pharmacy, School of Health Natural and SocialScience
Fleming Building, City Campus
Sunderland
SR1 3SD

Dear Miss Bello

Full title of study: **Use, attitudes and implications of using alternative medicines in secondary care patients**
REC reference number: **07/H0908/65**

The Research Ethics Committee reviewed the above application at the meeting held on 10 September 2007.

Ethical opinion

The members of the Committee present decided they were unable to give a favourable ethical opinion of the research, for the following reasons:

Members reviewed this application which aims to identify the prevalence and attitude towards the use of alternative medicines in hospital in-patients in secondary care and whether the use of such has any negative implications on the patient's health status or conventional drug treatment.

The following points were noted:

A3 - It was felt that a 7 months timescale for data collection from 840 patients was unrealistic and that the project was oversized.

A10.1 - A full explanation had been given of the aims and methodology. The enclosed questionnaire would be used as a basis for the interviews. It was unclear why the researcher would need access to patients' case notes.

Members expressed concern at the capacity for patients to join the study as they will be spending only a limited time in hospital. More information was requested on the time process for recruitment of participants, ie, when will the opportunity arise to undertake the interview, where will the interviews take place?

Members queried how the attitudes of participants would be captured and requested clarification on how this complex psychological evaluation would be achieved.

Research & Development and Caldicott approvals

From "Potts Caroline (RTF) NHCT" <caroline.potts@northumbria-healthcare.nhs.uk>
Sent Monday, September 29, 2008 3:57 pm
To Nusirat Bello <nusirat.bello@sunderland.ac.uk>
Cc
Bcc
Subject RE: RE: R&D, ethics, project

Good Afternoon Nusirat

Many thanks for your email. Apologies for not contacting you sooner. I
can confirm that the additional information you have kindly provided
does not alter the existing Trust approval - as suggested in your email,
it would be helpful to have a copy of the recent Ethics approval for our
records. Apologies if you have already sent this to me it does not seem
to have arrived.

If there is anything further that I can help with at this stage then please do not hesitate to contact me

Good luck with the project

Regards

Caroline

-----Original Message-----
From: Nusirat Bello [mailto:nusirat.bello@sunderland.ac.uk]
Sent: 29 September 2008 15:39
To: Potts Caroline (RTF) NHCT
Subject: Re: RE: R&D, ethics, project

Dear Caroline,

I have since not heard your feed back in respect to the previous email
regarding my project.

Northumbria Healthcare NHS
NHS Foundation Trust
Research Support Unit

Dr Richard Walker
Director of Research & Development

Direct Line: *0191 293 2709*
Fax: *0191 293 2709*

Caroline Potts *Acting R&D Manager* *Caroline.potts@nhct.nhs.uk* *Tel: 0191 259 6660*
Helen Mann *Admin Assistant* *Helen.mann@nhct.nhs.uk* *Ex 2842*
Ex 2829

13th September 2007

Miss Nusirat O Bello,
Postgraduate Academic Assistant,
Pharmacy,
School of Health Natural and Social Science,
Fleming Building,
City Campus,
Sunderland
SR1 3SD

Dear Miss Bello,

Re: Use, attitudes and implications of using alternative medicines in secondary care patients.

I confirm that I am happy to give approval and provide indemnity for the above study to take place within this Trust. I am authorised by the Chief Executive to do so on his behalf.

Please note that this it is a condition of this agreement that the Research Support Unit ***must*** be notified of:

- Any significant changes to the study design.
- Commencement and completion of the study.
- Any decision made by a Research Ethics Committee regarding this study.
- Any adverse effects upon subjects.
- Any suspension or abandonment of the study.
- All funding, awards and grants pertaining to this study, whether commercial or non-commercial.
- All final reports, publications and/or conference presentations of the findings of the study.

Commencement of any work related to this study, using Trust resources or premises, implies agreement with the above conditions.

Yours sincerely

Dr Richard Walker
Director of Research & Development

cc: Caroline Potts – Research & Development

Honorary contact Northumbria Healthcare NHS foundation Trust

Northumbria Healthcare NHS
NHS Foundation Trust

HONORARY CONTRACT

PROJECT STUDENT

NORTHUMBRIA HEALTHCARE NHS FOUNDATION TRUST

We are pleased to offer you an honorary contract appointment with the Trust. The appointment is to enable you to carry out the necessary role/responsibility for which you are appointed/invited. (Thank you for emailing me a copy of the 'description of role'. This will be placed on your personal file).

1. This contract is issued to Nusirat Olatundun Bello on the understanding that it is conferred for the sake of honour only and the holder will not receive any significant financial or other benefits for the services provided thereunder.

2. The Department in which the Post holder will be based is Pharmacy, North Tyneside General Hospital, Rake Lane, North Shields, Tyne & Wear NE29 8NH

3. The Title for this is PhD Pharmacy Project Student.

4. The contract commences on the 20th October 2008 and terminates on 19th October 2009.

5. This contract may be terminated by either party without prior notice, where reasonable grounds exist.

6. The proposed working arrangements and the pattern of hours worked in any week may well vary according to the requirements of the post. The number and distribution of hours will be a matter for mutual agreement between you and your Team Leader. You will be covered by the Working Times Regulations 1998 and will not be expected to follow other than standard procedures in respect of working Time.

7. Since the appointment is unpaid, this contract carries no entitlement to paid holidays, bank holidays, sick pay etc. which would otherwise be given to an employee of the Trust.

8. It will be expected that you carry out your work in a manner which is safe and absent from risk to your own health and that of any person who may be affected by your actions or omissions. It is also expected that you will co-operate with the Trust in complying with any relevant statutory regulation imposed by the Trust.

In association with the University of Newcastle upon Tyne

LP30255

Northumbria Healthcare NHS
NHS Foundation Trust

Id…….
Version 5.6/ 24/07/2008
A/1… Or B/1…Or C/1…. (Study ward)

PARTICIPANT INFORMATION SHEET

USE OF ALTERNATIVE MEDICINE IN SECONDARY CARE PATIENTS

Introduction

My name is Nusirat Bello. I am a PhD student at the University of Sunderland. I would appreciate it if you would please consider participating in a research project that I am undertaking. I have a series of questions to ask you on the subject of 'Alternative medicines'. This should take about 20-30minutes of your time. Further information is provided below, and you are welcome to ask any further questions, about this research project thank you. **PLEASE NOTE THAT:** Your decision to take part or not in this project will not affect your care or rights in any way.

What is this research about?

The research project is a survey on the use of '**Alternative medicines'** which is also called **'Alternative Therapies'** or **'Complementary Medicines'.** Usually these medicines ARE not prescribed by your GP or pharmacist, and are generally bought from health shops or Chinese health shops.

Examples of Alternative medicines are: Herbal medicine, Nutritional therapy, Acupuncture, Osteopathy, Chiropractic, Homeopathy, Aromatherapy, Reflexology, Chinese Herbal medicines (CHM) and Massage.

Examples of Herbal medicines and Dietary supplements are: St John's wort, Echinacea, Garlic, Aloe Vera, Glucosamine, Dandelion, Kalms, Valerian, and Devils claw, Evening primrose, Feverfew, Soy, Chinese herbal medicines and Indian ayurvedic.

What would you be doing in this research?

- If you decide to take part you will be asked questions such as
  - have you used alternative medicines before,
  - What are your reasons for use or not using alternative medicines,
  - What are your views on alternative medicines,
  - And what are your experiences if any in the use of alternative medicine.
- Your replies will be written down by me (my contact details are below).
- Your case notes would also be looked into to gather other information such as the medicines you are currently taking and any medical conditions.

Is there any risk to you from taking part in this research?

- No you are in no risk from participating in this research study and your decision to take part or not in this project will not affect your care or rights in any way.
- You may refuse to participate in the research, you may also if you wish refuse to answer any of the questions asked and choose to discontinue taking part in this study at any point you wish.
- I wish to reassure you that I will stop asking questions should you consider it or if I do recognise it becoming uncomfortable or upsetting to you in anyway. You will be referred to your nurse manager on the ward in such situation. You can also if you wish talk to the hospital PALS which offers confidential advice and supports to patients, see contacts below.
- All information will be kept strictly confidential and anonymised (That is your names and addresses will be omitted, all information will be stored securely, password protected when transferred on a database, and any identifier used will be removed so that you are not identifiable in the study results).

What is the benefit of this Study?

There is no direct benefit to you from participating in this study, and we will request that you please not consider changing the way you currently take your medicines and treatments without medical advice.

However, the research project is being conducted to gain knowledge about the use of and attitudes towards alternative medicines. This will help to inform health care providers, and thereby allowing improvement in overall patient care.

A summary of the result of the study would be made available to the hospital management at the end of the duration of the PhD programme.

Study was approved by the following Authority

- University of Sunderland
- Approval from NHS Ethics Research Committee
- This hospital (North Tyneside General hospital) and Northumbria Healthcare NHS Trust

Contact Details (Please, feel free to contact any of the below persons should you have any queries**)**:

1. Chief Investigator: Nusirat Bello, School of Health Natural and Social Sciences, University of Sunderland. Phone Number: 01915152643

2. Chair person of the research committee at the University of Sunderland (Dr. R. Pullen)

3. Dr Wasim Baqir, Pharmacist, Northumbria Healthcare NHS Trust

4. Your nurse on ward

5. PALS Tel: 0800 0320202 northoftynepals@northumbriahealthcare.nhs.uk

Thank You for your time.

Consent Form

Northumbria Healthcare NHS
NHS Foundation Trust

Version 5.6/24/07/2008
Centre Number
Study Number 08/H0908/43
Patient identification number for this study:
Study: USE OF ALTERNATIVE MEDICINE IN SECONDARY CARE PATIENTS

Name of Researcher: Nusirat Bello

	Please initial boxes
1. I confirm that I have read and understand the information sheet dated 24/07/2008 (Version 5.6) for the above study. I have had the opportunity to consider the information, ask questions and have these answered satisfactorily.	☐
2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my medical care or legal rights being affected.	☐
3. I understand that relevant sections of my medical notes may be looked at by the researcher Nusirat Bello, where it is relevant to my taking part in this research. I give permission for this individual to have access to my medical case notes.	☐
4. I understand that all the information collected for the study will be kept Confidential and anonymous so that I am not identifiable in the study results.	☐
5. I agree to my GP being informed of my participation in the study.	☐
6. I agree to take part in the above study.	☐

.....	.....	.....
Name of Patient	Date	Signature
.....	.....	.....
Name of Person taking Consent (Researcher)	Date	Signature

When completed, 1 for patient; 1 for researcher site file; 1 (original) to be kept in medical case notes

University of Sunderland

Id……. Version 5.6/22/05/2008

A/1... Or B/1...Or C/1…. (Unit of study/ ward) Date …… Time …..to….

SEMI- STRUCTURED QUESTIONNAIRE

USE OF ALTERNATIVE MEDICINE IN SECONDARY CARE PATIENTS

(Face- to- face interview of study participant and abstraction from medical records)

Demography (Response from participant)

1. Gender?
   ↑ 1.Male 2.Female

2. Age? ……

3. Nationality/ Ethnic Background?
   ↑ 1.White: British, Irish, Others Italian, Greek ……
   ↑ 2.Mixed: White & Black Caribbean, Black African, Asian, Others……
   ↑ 3.Asian: Pakistani, Indian, Bangladeshi, Others ……..
   ↑ 4.Black: Black Caribbean, Black African, Others ……
   5. Chinese: Chinese, Others……

4. Level of education?
   ↑ 1.None
   ↑ 2.Primary
   ↑ 3.College
   ↑ 4.University undergraduate
   5. University postgraduate

Use of Alternative medicine: (Response from participant)

5. Have you used any form of Alternative medicine?
   1. Yes
   2. No

6. Please, can you describe briefly what your general views or opinions on Alternative medicines?

……

7. Why did you choose to use or not to use Alternative medicine?

……

8. Would you consider using Alternative medicine in the future?
   ↑ 1.Yes
   2. No
   3.Do not know
   Why.....

9. Do you think Alternative medicines; example herbal medicine may affect prescribed medication or over the counter drugs (OTC) in a bad or good way?
    1. Yes
    2. No
    3. Do not know

    Why.....

10. Do you think Alternative medicines can have side effects, unwanted effects or discomfort?
    ↑ 1.Yes
    ↑ 2.No
    ↑ 3.Do not know

    Why.....
    .....

11. Do you think Alternative medicines are effective?
    ↑ 1. Yes
    ↑ 2.No
    ↑ 3.Do not know

Why.....

12. When last have you used any form of Alternative medicine?
    ↑ 1.Currently on
    ↑ 2.Within the last 6months
    ↑ 3.above 6months- 12months
    ↑ 4.above 12months- Last 2years
    ↑ 5.More
    ↑ 6.I cannot remember

13. Who recommended Alternative medicine to you?
    ↑ 1.Friend
    ↑ 2.Relative (mother, father, brother, sister, uncle, aunt, cousin…..)
    ↑ 3.Media (Internet, Television, newspaper)
    ↑ 4.Other please specify ……..

14. Did you mention about the use of Alternative medicine during this hospital stay?
    ↑ 1.Yes I did to (Doctor, Pharmacist, Nurse, Others please specify.....)
    ↑ 2.No I did not

    Why…….....

15. What type(s) of Alternative medicines have you used? For Herbal medicine, and Dietary supplements enter full details below.

Type of AM used?	When used	Condition (s)	Was AM effective for reason used for	Describe experience of any discomfort or side-effect soon or after, did reaction stop or subside on stopping
1. Herbal medicine				
2.Dietary supplements				
3.Homeopathy				
4. Aromatherapy				
5. Massage				
6.Acupuncture (including Chinese acupuncture)				
7. Osteopathy				
8. Chiropracty				
9. Reflexology				
10. Others please specify				

16. Details on any form of Herbal Remedies or Dietary Supplements used before? Examples: St John's wort, Echinacea, garlic, Aloe Vera, Glucosamine, Dandelion, Kalms, Valerian, Devils claw, Evening prime rose, Feverfew, Soy, Chinese herbal medicines, Indian ayurvedic

Type of HS used	When used	Conditions used for	Other medications used (prescription or over the counter)	Was Hs effective for reason used for	Describe, experience of any discomfort or side-effect soon or after, did reaction stop or subside on stopping

Continue on separate sheet if necessary

Other relevant data (To be abstracted from participant medical case notes)

17. Medical condition of Participant?

Current Complain ……..

Past Medical History ……..

18. Signs and symptoms ?

……..

19. Conventional Drugs?

Name……

20. Use of Alternative medicine documented?

……

21. Any Known drug reaction or allergies?

……..

22. Alcohol and Smoking history?

……..

(Continue on separate sheet if necessary)

Questionnaire for consumers of alternative medicine in health shops in community setting

Sex	Age	Ethnic or Nationality	What alternative medicine(s) are purchased and other used?	Condition(s) used for?	Why choose alternative medicine?	Who recommended alt medicine to you?	Views sought?	Are you using any conventional medicine, name? Did you mention using alternative medicine to your doctor?

Questionnaire Staff of Health shops

INTRODUCTION

My name is Nusirat. I am carrying out a study on complementary and alternative medicine as a requirement of a PhD thesis at the University of Sunderland. I would appreciate it if you could spare me some of your time filling out this questionnaire. This is strictly for academic purpose, your identity remains anonymous and you are under no obligation to answer any question(s) you do not want to.

Thank you for your anticipated co-operation.

QUESTIONS

Instructions: Please fill in answers and where options are given please circle, underline or tick your choice or choices, if not given please specify any other.

1. What is your role in the premises? ……

2. How often do costumers ask you questions about alternative medicine?
   a. Very Often b. Often c. Not always d. Never

   How comfortable are you in discussing use with customers (Pharmacies)?

   a. very comfortable b. comfortable c. not so comfortable d. not comfortable at all

   Have you recommended alternative medicine to customers in the previous one year (Pharmacies)? a. Yes b. No

3. What age groups likely to request about alternative medicines?

   a. 18- 30 years b. 31- 45 years c. 46- 59years d. 60- 75years e. above 75 years

4. What is/ are the ethnic group of customers who purchase alternative medicine?
   a. White b. Asian c. African

5. Customers who request more about alternative medicines are more likely to be?
   Male/ Female

6. What kind of questions do customers often ask on alternative medicine?
   …….
7. From your experience what would you say are the reasons why customers use alternative medicines? ……..

8. Alternative medicines most commonly sold in the last previous months?

THANK YOU

Appendix 5. Example of illustration of Chi-square and Fisher's exact test

Use of alternative medicine at some point in life * Gender of in-patients in study Crosstab

			Gender of in-patients in study		Total
			Male	Female	
Use of alternative medicine at some point in life	Yes	Count	96	121	217
		% within Gender	88.1%	92.4%	90.4%
	No	Count	13	10	23
		% within Gender	11.9%	7.6%	9.6%
Total		Count	109	131	240
		% within Gender	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.265[a]	1	.261
~~Continuity Correction[b] *~~	~~.819~~	~~1~~	~~.366~~
~~Likelihood Ratio *~~	~~1.260~~	~~1~~	~~.262~~
~~Linear-by-Linear Association *~~	~~1.260~~	~~1~~	~~.262~~
N of Valid Cases	240		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 10.45.
b. Computed only for a 2x2 table

No p-value < 0.05 for a statistically significance for
Chi-square value 'Pearson Chi-Square in this study

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi *	-.073	.261
	Cramer's V	.073	.261
N of Valid Cases		240	

a. Not assuming the null hypothesis.
b. Using the asymptotic standard error assuming the null hypothesis.

Valid chi-square result less than 20% cells have minimum expected frequency of less than 5

Cramer's V strength of association of chi-square significance p- value

Use of alternative medicine at some point in life * Ethnic Background of in-patients in study Crosstab

			Ethnic Background of in-patients in study		Total
			British	Asian	
Use of alternative medicine at some point in life	Yes	Count	214	3	217
		% within Ethnic Background	90.3%	100.0%	90.4%
	No	Count	23	0	23
		% within Ethnic Background	9.7%	0.0%	9.6%
Total		Count	237	3	240
		% within Ethnic Background	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
~~Pearson Chi-Square~~	~~.322[a]~~	~~1~~	~~.570~~	
~~Continuity Correction[b] *~~	~~.000~~	~~1~~	~~1.000~~	
~~Likelihood Ratio *~~	~~.608~~	~~1~~	~~.435~~	
Fisher's Exact Test				1.000
~~Linear-by-Linear Association *~~	~~.321~~	~~1~~	~~.571~~	
N of Valid Cases	240			

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is .29.
b. Computed only for a 2x2 table

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	~~Phi *~~	~~.037~~	.570
	Cramer's V	.037	.570
N of Valid Cases		240	

a. Not assuming the null hypothesis.
b. Using the asymptotic standard error assuming the null hypothesis.

Invalid chi-square result more than 20% cells have minimum expected frequency of less than 5. Therefore a Fisher's exact test is more appropriate to be reported

Appendix 5. Example of illustration of Chi-square and Fisher's exact test

Use of alternative medicine at some point in life * Level of education of in-patients in study

Crosstab

			Level of education of in-patients in study					Total
			None	Primary	College or related	University undergraduate	University postgraduate	
Use of alternative medicine at some point in life	Yes	Count	5	50	127	24	11	217
		% within Level of education	71.4%	82.0%	93.4%	100.0%	91.7%	90.4%
	No	Count	2	11	9	0	1	23
		% within Level of education	28.6%	18.0%	6.6%	0.0%	8.3%	9.6%
Total		Count	7	61	136	24	12	240
		% within Level of education	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11.885[a]	4	.018
Likelihood Ratio	12.499	4	.014
Linear-by-Linear Association	7.888	1	.005
N of Valid Cases	240		

a. 3 cells (30.0%) have expected count less than 5. The minimum expected count is .67.

a. Invalid chi-square result more than 20% cells have minimum expected frequency of less than 5

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	.223	.018
	Cramer's V	.223	.018
N of Valid Cases		240	

a. Not assuming the null hypothesis.
b. Using the asymptotic standard error assuming the null hypothesis.

Categories are collapsed to fewer categories to increase number of cells with minimum expected count of 5

Use of alternative medicine at some point in life * Collapsed Level of Education in 3 categories

Crosstab

			Collapsed Level of Education (in 3 categories) of in-patients			Total
			None or primary	College or related	Higher Degree	
Use of alternative medicine at some point in life	Yes	Count	55	127	35	217
		% within Collapsed Level of Education	80.9%	93.4%	97.2%	90.4%
	No	Count	13	9	1	23
		% within Collapsed Level of Education	19.1%	6.6%	2.8%	9.6%
Total		Count	68	136	36	240
		% within Collapsed Level of Education	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.439[a]	2	.005
Likelihood Ratio *	9.833	2	.007
Linear-by-Linear Association *	9.196	1	.002
N of Valid Cases	240		

The p-value < 0.05 for a statistical significance for Chi-square value 'Pearson Chi-Square in this study

a. 1 cells (16.7%) have expected count less than 5. The minimum expected count is 3.45.

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi *	.209	.005
	Cramer's V	.209	.005
N of Valid Cases		240	

a. Not assuming the null hypothesis.
b. Using the asymptotic standard error assuming the null hypothesis.

Valid chi-square result less than 20% cells have minimum expected frequency of less than 5

Cramer's V strength of association of chi-square significance p- value

North East Postgraduate Research Conference 2007, Newcastle UK

Use of alternative medicine by consumers in the North East of England, United Kingdom

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ABSTRACT

Alternative medicines (AM) are medicines not presently considered to be part of conventional or orthodox medicines. AM are increasingly becoming popular, hence numerous research studies are being conducted on AM. A dearth in research examining usage within the North East of England was identified, and so in June-July 2006 usage of AM within the region was examined. Customers purchasing AM products at a number of Chinese medicine shops, health food stores and pharmacy shops were observed and interviewed regarding use of and views on AM. To further enrich study, similar additional information was collected from staffs at the health shops. The study showed females and 45-59years of age as likely users of AM. There was purchase and use of a variety of herbal and dietary supplements. Other AM reported used were aromatherapy, homeopathy, acupuncture, and Chiropractic. Some reasons given for using AM included side-effects and inefficacy of conventional medicines. Likewise side-effects and inefficacy from some AM used were reported. AM were sought for various physical and emotional symptoms and disorders, and sometimes used alongside conventional medicines. This initial study supports previous existing evidence and concern regarding AM use. It reflects similar trends in AM use, health needs resulting in, and potential health implications from AM use.

(A baseline study of a PhD project)

This is a report of an initial project in preparation of a subsequent PhD project. The aim of this initial project study was to examine public use and views on AM within the North East of England, UK to inform and prepare for a further study.

INTRODUCTION

This is a report of a preceding study conducted to examine consumers' use and views on AM within the North East of England. This was to help gain current and evident insight knowledge of usage within the region and to help prepare towards and inform future work. A widespread increase of the use of other health system referred as alternative medicines (AM) has been recognized. We identified scarcity in research studies examining usage of AM within the North East of England, UK. Research studies have shown that the prevalence of AM use and outcome from use is still unclear and the reasons why people use AM are at best complex. Thus, this research project on AM usage within the region was considered relevant.

'Alternative Medicine (AM)' also called 'Alternative Therapies', or 'Complementary Medicines' are medicines not presently considered to be part of conventional, orthodox or the mainstream medicine. Usually these medicines ARE not prescribed by your GP or pharmacist, and are generally bought from health shops or Chinese health shops.

Examples of Alternative Medicines (AM): Herbal medicine, Acupuncture, Osteopathy, Chiropractic, Homeopathy, Aromatherapy and Massage.

Examples of Herbal medicines and Dietary supplements (HS): St John's wort, Echinacea, Garlic, Aloe Vera, Glucosamine, Kalms, Devils claw, Evening primrose, Feverfew, Chinese herbal medicines and Indian ayurvedic.

METHOD

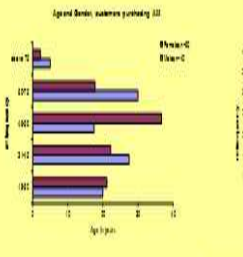
Below is a summary of the procedure which the study was conducted. An attempt was made to include samples that could possibly provide rich and broad information to deepen and widen understanding of AM use within the region in a short period and small scale study.

- Based on recent trend more people are seeking AM products which are available to the public at Chinese health shops, health food stores and pharmacies.
- In June-July 2006, customers purchasing AM products at a number of Chinese medicine shops, health food stores and pharmacy shops within the region were observed and interviewed regarding use of and/or views on AM.
- More data was collected during the same period from staffs at the sites regarding their perception and views on customers' use of AM.
- Permission was sought before commencing study and the identity of participants are not be included in the results of the study.
- Issues regarding use of and views on AM arising from investigation were collated. Most are represented pictorially in the results section.

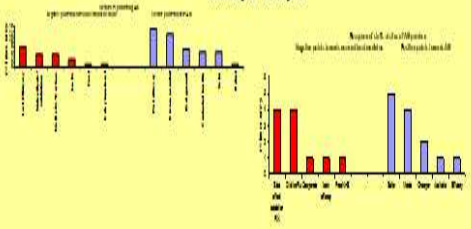
RESULTS

Use of and/or views on AM: customers purchasing AM and staffs at site of AM purchase within the North East of England, UK

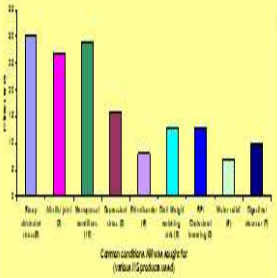
Use of AM across gender and age: Females and 46-59years of age are likely users of AM:



Reasons given for using AM:



AM were sought for various physical and emotional symptoms and disorders:



Common conditions AM were sought for (various HS products used)

AM used alongside conventional medicine

Absorption:	Analgesics:
↓↑ Water balance	↑Glycyrrhizine + Ginseng aromatherapy↓
↓↑ Glucosamine	acupuncture + Herbs
↓↑ Yin Gui Wan & Acupuncture	↑Cocculamin + Cod liver ↑Frankincense + Joint care ↑Orchid+ Lavender
Antidepressant:	**Cardiac drugs:**
↑Paroxetine & Implant + St Johns wort	↑Herbs + Chinese Herbs + Acupuncture
↓↑ Fluoxetin	↓↑ Cardioxine(omega-garlic) ↑Digoxin + Glucosamine

Underlined=Conventional medicine + (plus AM)

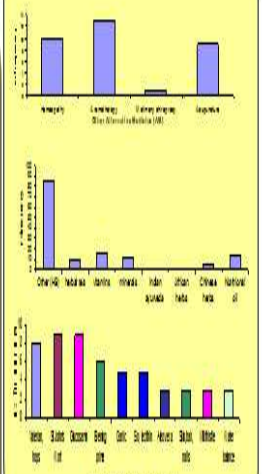
Side-effects and Inefficacy from some AM use reported:

Side-effects from use of AM by 2 users
- ↑↓↑Honey: chiropracty resulted in stiffness for a day after treatment
- St. Johns wort, resulted in tiredness

Inefficacy from AM reported by two users of AM
- ↑↓↑-P was not strong enough for depression as on conventional antidepressants
- ↓A bionic was not effective (Lapco- as back to Regucal for digestion)

RESULTS

Purchase and use of a variety of HS and other forms of AM:



Herbal remedies and Dietary supplements (HS)

CONCLUSION and FUTURE WORK

This initial study reflects current evident trends in, health needs resulting in, and potential health implications from AM use for previous research studies in other parts of the UK and part of the world), bringing about similar concerns and issues:

- Herbs and conventional drugs are known to possess similar activity pathways and so the significant risk of interactions from combination. E.g. potential risk of conventional drug interaction between St Johns Wort and Paroxetine, and other conventional drugs and AM used always identified in this study.
- Skeptic scepticism about the efficacy of AM, perceived efficacy reported from AM use is being recognized as beneficial by health professionals and policy makers alike.
- The prevalence of AM use and outcome from still remains unclear.
- Current moves are seen towards proper regulation of the AM practices and their safety profile and public need are themes in the decision making.

... Therefore more research studies within the region that will explore AM use, negative and positive issues relating to use and its impact on healthcare are recommended. A further more study within the region is in consideration.

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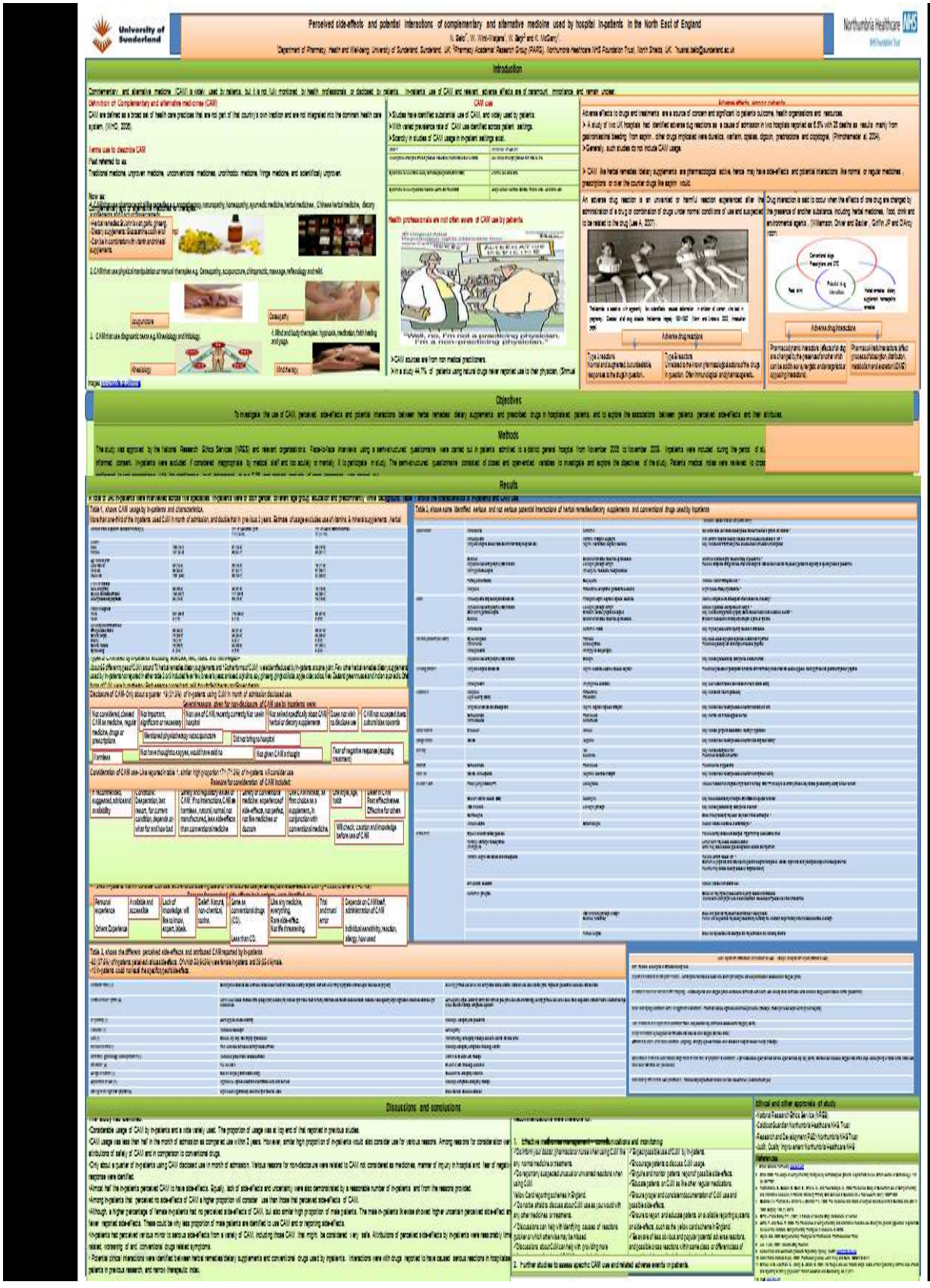
Prescribing and Research in Medicines Management (UK & Ireland) 'Is the patient's voice loud enough?' June 2011- Abstract below in Pharmacoepidemiology and drug safety



documentation and reporting practices, but the training showed statistically significant improvement in their knowledge and awareness of ADRs. The period of educational intervention in this study did not appear adequate to re-orient the pharmacists to embrace appropriate documentation and reporting of ADR incidents.

Conclusion: There arises the need to emphasize this aspect of pharmaceutical care in the curriculum of pharmacy schools in Nigeria and also in the Mandatory Continuing Professional Development programme for practicing pharmacists. Similarly, relevant regulatory bodies such as NAFDAC and the Pharmacists Council of Nigeria (PCN) may have to enforce necessary protocols for documenting and reporting ADRs.

KEY WORDS: adverse drug reactions; documentation and reporting practices; pharmaceutical care; pharmacy curriculum.

3. Parents' experiences of adverse drug reations in children: qualitative study

Arnott J, Turner M A, Hesselgreave H, Nunn A J, Peak M, Pirmohamed M, Smyth R L, Young B.

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Objectives: Children experience ADRs, yet there is virtually no evidence to guide clinicians who communicate with families when a child has an ADR. We investigated parents' accounts of their child's suspected ADR to understand their experiences and communication needs.

Design: The study used semi-structured qualitative interviews with analysis informed by the principles of the constant comparative method.

Participants: The study included parents of 44 children who had a suspected ADR identified on hospital admission, during in-patient treatment, or reported by parents using the Yellow Card scheme.

Setting: The study was conducted in a regional children's hospital and used spontaneous reports of ADRs by parents.

Results: Many parents described being confused by how practitioners communicated about ADRs and unclear about the implications for the child's future use of medicines. Parents were frustrated when practitioners did not acknowledge and record the suspected ADR. Some felt that practitioners had abandoned their child, and a few reported refusing further medicines because they feared a repeated ADR. The accounts of parents of children with cancer were different; they described how practitioners had clearly explained the risks associated with medicines. Despite the serious nature of the risks associated with their child's treatment, these parents felt confident in practitioners' management of their child's ADRs. The methods used by parents to link symptoms in their child with a medicine were similar to those used by practitioners to assess the likelihood of an ADR. This suggests there is a common ground between parents and practitioners that could be a starting point for improving communicating about ADRs.

Conclusion: From the perspective of most parents, practitioners' communication about children's ADRs was poor. The accounts of parents of children with cancer illustrate how good communication about ADRs can reduce parental confusion and anxiety. Improved communication about ADRs with parents is needed, and the overlap between parents and practitioners in how they linked children's symptoms to medicines could be a starting point. However, more research is needed to identify and overcome potential barriers to improving communication with families about ADRs.

4. Perceived side effects and potential interactions of complementary and alternative medicine used by hospital in-patients in the North East of England

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Background: Complementary and alternative medicine (CAM) is widely used by patients, but it is not fully monitored by health professionals or disclosed by patients. In-patients' use of CAM and relevant adverse effects are of paramount importance and remain unclear.

Objectives: The aims of the study were to investigate the use of CAM, perceived side effects and potential interactions between herbal remedies/dietary supplements and prescribed drugs in hospitalised patients, and to explore the associations between patients' perceived side-effects and their attributes.

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DOI: 10.1002/pds

Bello N, Winit-Watjana W, Baqir W, Mcgarry K. Disclosure and adverse effects of complementary and alternative medicine used by hospitalized patients in the North East of England. Pharmacy Practice (Internet) 2012 Jul-Sep;10(3):125-135.

Original Research

Disclosure and adverse effects of complementary and alternative medicine used by hospitalized patients in the North East of England

Nusirat BELLO, Win WINIT-WATJANA, Wasim BAQIR, Kenneth MCGARRY.

Received (first version): 21-Dec-2011 Accepted: 19-Jul-2012

ABSTRACT*

Objectives: This study aimed to investigate the prevalence, disclosure and adverse effects of complementary and alternative medicine (CAM) use in hospitalised patients, and to explore the associations between patients' perceived side-effects and relevant factors.

Methods: Patients who were admitted to a district general hospital and met the eligibility criteria were interviewed using a semi-structured questionnaire. Their medications and pertinent details were verified from the medical notes. All quantitative and qualitative data were collated and analysed. A chi-squared test was performed to test the associations of the perceived CAM side-effects with the significance level determined at α=0.05.

Results: A total of 240 in-patients completed the study. They were mostly white British (98.8%). The prevalence of CAM use within two years was 74.6% and one month 37.9%. Only 19 of 91 patients (20.9%) using CAM within one month disclosed their current CAM applications. Nearly half of patients (45.8%) who used CAM within two years experienced various CAM side-effects that tended to resolve after discontinuation. Slightly more than half (57.6%) perceived CAM side-effects and their perceptions were significantly associated with gender (P=0.048) and consideration for future CAM use (P=0.033). Potential interactions between herbal remedies/dietary supplements and prescribed drugs, such as garlic with lisinopril or aspirin, were assessed in 82 patients (45.8%).

Conclusion: Most in-patients used CAM and experienced some adverse effects. The disclosure of CAM use and its adverse outcomes should be encouraged by healthcare professionals.

Keywords: Complementary Therapies. Disclosure. Inpatients. United Kingdom.

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ADVERTENCIA Y EFECTOS ADVERSOS DE LAS MEDICINAS ALTERNATIVOS Y COMPLEMENTARIOS USADOS POR PACIENTES HOSPITALIZADOS EN EL NORESTE DE INGLATERRA

RESUMEN

Objetivos: Este estudio trató de investigar la prevalencia, advertencia y efectos adversos de las medicinas alternativas y complementarias (CAM) usadas por pacientes hospitalizados, y explorar las asociaciones entre los efectos adversos percibidos por los pacientes y factores relevantes.

Métodos: Se entrevistó usando un cuestionario semi-estructurado a los pacientes que fueron admitidos en un hospital general distrital y que cumplían los criterios de elegibilidad. Se comprobaron los medicamentos y otros detalles pertinentes en la historia clínica de los pacientes. Se recogieron y analizaron todos los datos cuantitativos y cualitativos. Para comprobar las asociaciones de los efectos adversos percibidos de las CAM se realizó un test chi-cuadrado con un nivel de significación de α=0,05.

Resultados: Un total de 240 pacientes hospitalizados completó el estudio. Eran mayoritariamente británicos (98,8%). La prevalencia de uso de CAM en dos años fue del 74,6% y en un mes del 37,9%. Sólo 19 de los 91 pacientes (20,9%) que usaron CAM en el último mes reveló su uso actual. Casi la mitad de los pacientes (45,8%) que usaron CAM en los dos últimos años sufrió algunos efectos adversos de las CAM que tendieron a resolverse después de abandonarlas. Ligeramente más de la mitad (57,6%) percibieron efectos adversos de las CAM y su percepción estaba significativamente asociada con el género (P=0,048) y con la consideración sobre el futuro uso de CAM (P=0,033). En 82 pacientes (45,8%) se encontró interacciones potenciales entre plantas medicinales/suplementos dietéticos y medicamentos prescritos, tales como ajo con lisinoprilo o aspirina.

Concusión: La mayoría de los pacientes hospitalizados usó CAM y percibió algunos efectos adversos. La advertencia del uso de CAM y sus efectos adversos debería ser incentivada por los profesionales de la salud.

Palabras clave: Terapias Complementarias. Revelación. Pacientes Internos. Reino Unido.

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Prevalence and perceived outcomes of complementary and alternative medicine use in hospitalized British patients

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Abstract

Objectives: This study aimed to investigate the prevalence and perceived outcomes of complementary and alternative medicine (CAM) use in secondary care patients and to find out determinants for CAM utilization and perceived effectiveness and side-effects.
Materials and Methods: Patients who met the eligibility criteria in this cross-sectional study were interviewed using a semi-structured questionnaire. Patients' medications and relevant details were verified from the medical notes. A logistic regression analysis was performed and the significance level set at $\alpha = 0.05$.
Results: A total of 240 in-patients were interviewed. The prevalence of CAM use during admission, within 1 month, within 1 year, and at some point in life was 90.4%, 68.8%, 37.9%, and 8.3%, respectively. Diverse reasons for CAM use or non-use were cited. Nearly two-thirds of patients (63.1%) perceived CAM effectiveness and approximately half (57.6%) were aware of its side-effects. The determinants for CAM use at some point in life and perceived effectiveness could be predicted approximately 20% by two models: Logit P_{use} = 3.404 − 1.044 × Educ + 1.314 × Ward − 1.539 × Consider and Logit P_{eff} = 3.244-0.995 × Gender-0.025 × Age − 1.503 × Consider.
Conclusion: Patients decided to use CAM for various reasons and perceived different outcomes. The specific CAM use and its outcomes warrant further studies.

Keywords: Complementary therapies, hospitalized patients, prevalence, perceived outcomes, the UK

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