5-1-2002

Attitudes and Knowledge of Nurses Regarding Herbal Medications

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ATTITUDES AND KNOWLEDGE OF NURSES REGARDING HERBAL MEDICATIONS

A Thesis
Presented to
The faculty of The Department of Nursing
Western Kentucky University
Bowling Green, Kentucky

In Partial Fulfillment of the Requirements for the Degree
Master of Science in Nursing

By
Janie Davis, RN, BSN

May 2002
Dedications and Acknowledgments

To Pat, you are my husband, best friend and soulmate. Thank you for your patience, endless support and affection.

To Mom and Dad, thank you for the strong values you have taught me. Thank you for your encouragement and your belief in my ability to succeed.

To Dr. Donna Blackburn, Dr. Patricia Bailey, and Dr. Melinda Joyce, thank you for your support, and endless knowledge.

To Ms. Catherine Abrams and the employees of Jennie Stuart Medical Center, thank you for your support throughout this project.

To Mr. Robert Cobb, thank you for your patience and support with the statistical aspect of this study.
ATTITUDES AND KNOWLEDGE OF NURSES REGARDING HERBAL MEDICATIONS

March 26, 2002
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4/23/02
Much information has been published regarding herbal medication use. However, information is limited on how nurses incorporate this information into their practice, communicate information to the client, or collaborate with physicians to prevent drug/herbal interactions. The purpose of this study is to explore the attitudes and knowledge of nurses regarding the use of herbal remedies at various levels of practice.

According to Henderson’s Theory of Basic Care Components, the nurse has a responsibility to assess client needs, help clients meet health needs, and provide a safe environment for the client to perform activities unaided. These interventions help the client become complete, whole and independent. These skills are blended when teaching about herbal/drug interactions.

A convenience sample of RNs and LPNs (n=51) from a southern Kentucky hospital was used in this study. After informed consent was obtained, a researcher developed questionnaire with 15 knowledge-based, multiple choice questions and 10 attitude-based, Likert scaled questions were given. The study was conducted using a pre- and posttest design with an educational in-service intervention.

Sample demographic data revealed 96% to be female, with a mean age of 39.2 years, 53% hold an ADN, 16% a BSN, and 4% a MSN. Average years of experience were nine years. Chi-squared tests showed no significance as a function of age, gender, education, years of experience or area of practice in baseline knowledge. T-tests for related samples revealed a change in mean score from 9.0 on the pre-test to 12.0 on the post-test. (T=8.63) (p=0.001).

Further research in this field is needed before generalization can be made. Consumers use herbal medications to reduce health care costs. Knowledge of herbal medications can prevent dangerous interactions with prescription medications.
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Chapter 1

Background and Significance

The use of herbal remedies has increased over the past decade. Many consumers offer reasons for their use of herbal remedies, including lower costs, and fewer side effects. However, many consumers fail to recognize the importance of informing their health care professionals of their use of herbal remedies.

Herbal remedy use is not a new phenomenon. The uses of herbal remedies date as far back as 60,000 years ago. The use of herbal remedies was further developed by the practitioners of traditional Chinese medicine (Penderson (c), 2000).

Herbal remedies have a strong history in the western hemisphere; however, with the development of synthetic medications, many consumers of western medicine converted their health care resources to the use of synthetic medications (Appendix B). Recently, Americans have increased their use of herbal remedies giving Americans more control over their health. However, many nurses have failed to acquire knowledge of herbal remedies. Nurses routinely interview their clients about their home medications, but fail to specifically inquire about herbal medications (Weil, 1983).

Many European health care consumers use herbal remedies, and it appears Americans are following their examples. American nurses receive limited education regarding the use of alternative therapies and may have inadequate knowledge levels to appropriately educate their clients. Nurses may fail to recognize the prevalence of herbal remedy use among their American clientele. This failure to maintain current knowledge may be linked to the lack of research associated with herbal remedies conducted by the
Federal Drug Administration (Appendix J). The major reasons for limited research are the costs involved with research and the limited availability to control the use of patents on these remedies (Holcomb, 1999).

In America, the Federal Trade Commission controls the amount of herbal remedies that are allowed to enter the country. These remedies are also governed by the same regulations as food and dietary supplements. These regulations do not require herbal remedies to list known dangers and/or interactions related to their products use (Schirmer, 1998).

Americans use many herbal remedies, primarily Echinacea, Ephedra, Gingko, Ginseng, and St. John’s Wort (World Almanac, 2000). These remedies have many interactions, especially with anticoagulants and antidepressants (Penderson (a) (b), 2000). It has been predicted that many interactions have not been discovered. A primary concern for the nurse is to monitor for reactions between prescription drugs and herbal medications. Since herbal remedies are not regulated by the FDA, the purity of the herbal remedies is not guaranteed. Subsequently, one capsule may contain five times the amount of a herb compared to another capsule (Holcomb, 1999).

What is the future of herbal use in America? Some sources encourage consumers to continue their independence in their health care; however, it is essential that consumers maintain or increase their knowledge of the herbal remedies they consume (Penderson (b), 2000). If an interaction occurs, nurses need to be able to intervene appropriately. This idea leads us to another concern. If nurses fail to inquire about herbal remedy use, and fail to keep their knowledge base current, how will nurses provide appropriate care
for their clients? Will the knowledge and attitudes of nurses affect their desire and ability to maintain a current knowledge base?

**Purpose Statement**

The purpose of this study is to explore the attitudes and knowledge of nurses regarding selected herbal medications before and after an educational in service focusing on herbal remedies.

**Research Questions**

1. Is there a difference in baseline knowledge as a function of age, gender, educational preparation, clinical experience and current area of practice?
2. Is there a difference in nurses knowledge and attitudes between pretest scores and posttest scores following an educational in service on herbal remedies?

**Definition of Variables**

**Prescription medications**-standard pharmacological medications prescribed by physicians for the treatment or maintenance of health alterations. Specific to this study, prescription medications will include but are not limited to antidepressant, anticoagulant, and anti-hypertensive agents.

**Herbal Medications**-plant-based products purchased by individuals in health food stores, pharmacies, grocery stores, convenience stores, etc., but excluded from governmental regulations. In this study, the specific herbal medications to be studied are Echinacea, Ephedra, Gingko, Ginseng, and St. John’s Wort.

**Nurse**-individuals who have completed an approved curriculum in health care science that qualifies the person to write and successfully complete a licensure examination.
In this study, nurses will be the employees of a public hospital in southern Kentucky.

Information that nurses provide-instruction given by nurses to persons that relate to the side effects, interactions, that may occur between and between the selected herbal medications and prescribed medications.

Knowledge-the factual and scientific information regarding the benefits, actions, side effects and potential interaction of herbal medications and prescription medications. In this study, knowledge will be determined as a composite score on a researcher developed Likert scale of factual and scientific information.

Attitude-a personal belief regarding a topic that affects one’s behavior. In this study, attitude will be determined as a composite score on a researcher developed Likert scale of factual and scientific information.

Framework

The theoretical framework used in this study was Virginia Henderson’s Theory of Basic Care Components. Henderson has been called a needs theorist. Based on Maslow’s Hierarchy of Needs, Henderson conceptualized that a client’s needs must be met before the client can fulfill his/her own needs (Meleis, 1991).

Henderson believed humans have 14 basic needs. These tasks have been separated into four categories. These categories include: physiological, spiritual, sociological, and psychological (www.angelfire.com).

Henderson theorizes the environment as an individual in relation to families. One further function of the environment conceptualized the nurse as one who acts for the
individual who is unable to function independently. This function can be realized if the nurse assists the client in the 14 basic activities until the client can perform the activities independently (www.angelfire.com).

Henderson states good health is a challenging goal. However, nurses must stress health promotion, prevention, and cure of disease. Henderson acknowledges that health is affected by age, cultural background, physical and intellectual capabilities as well as emotional balance (www.angelfire.com).

Henderson’s theory influences nursing education. Henderson believed that the nurse will be knowledgeable in personality development, as well as the beliefs and customs of different groups to accurately assess the needs of individuals (Parker, 2001).

Henderson’s theory also influences nursing practice. Henderson believed that the nurse has the ability to independently initiate and control basic nursing care activities. One such activity is the avoidance of dangers in the environment and to avoid injury to others (Parker, 2001).

Henderson’s theory focuses on helping individuals perform patterns of daily living and activities related to health (Parker, 2001). These activities assist individuals to become complete, whole, and independent. Based on Henderson’s theory, if the nurse is knowledgeable about herbal remedies and uses this information when assessing the individual client’s educational level, he or she will be able to assist the individual toward independence in making healthy choices.
**Assumptions**

1. Clients admit to nurses their use of herbal medications.

2. Nurses acknowledge the use of herbal medications among their clients.

3. Nurses desire information to maintain current knowledge regarding herbal medications.

4. Nurses acknowledge that known and potential interactions and side effects may occur when herbal medications and prescription medications are used concurrently.

**Relevance**

In this chapter, the background and significance of herbal medication use has been discussed. The growth in the number of herbal medications used daily by clients, the limited amount of education available to nurses, the limited knowledge of the actions of herbal medications, and the increasing number of potential interactions between herbal medications and prescription medications suggest a need for further research in this area. The following is a review of literature of historical, methodological, and clinical trial data available on herbal medication use.
Chapter 2
Review of Literature

The use of herbal medications is on the rise in the United States. The primary reasons for the increase in sales are the public’s dissatisfaction with increasing health care costs. The high incidence of serious or unpleasant side effects relate to scientifically developed medications, and the public’s desire to have greater autonomy and control in health related decisions. This review of the literature contains information regarding the history and development of herbal medications, current use of specific herbal medications, the educational needs of nurses and the future of herbal medications. However, no previous studies were found that measured the knowledge and attitudes of nurses regarding herbal remedies.

Herbal History

Herbal preparations were found at the burial sites of Neanderthal men who lived more than 60,000 years ago. The first system of diagnosis and treatment was known as Ayurveda. The system used herbs in conjunction with breathing, meditation, and Yoga. Ayurveda was practiced in India for more than 2,500 years. The name was derived from Sanskrit “ayuh” which means “longevity” and “veda” which are translated as knowledge (Pendersen (a), 2000).

The use of herbal remedies developed into traditional Chinese medicine (TCM). TCM used herbs along with acupuncture, acupressure, and Qi gong. TCM history begins around 2,800 BC. Sheng Nung was the patron saint of TCM. In TCM herbs are
classified according to active characteristics, such as heating, cooling, moisturizing, and drying. The specific herb was prescribed according to the effect the various disease had on organ activity (Pedersen (b), 2000).

Herbal medicine practice extended to include the development of western herbal use, which began with the Sumarians. Beginning near 3,000 BC, the Sumarians boasted a refined knowledge of herbal medicine (Pedersen (a), 2000). During the same time, similar herbal healing systems were found in records from subsequent cultures, such as the Assyrians, the Egyptians, the Israelites, the Greeks, and the Romans. The Gaults, Celts, Scandinavians, and other European tribes blended knowledge with the invading Moors and Romans to form the foundation of Western Herbal use. This art of herbal use was refined by the Europeans prior to their travel to the new world (Pedersen (a), 2000).

Western herbal use underwent further refinement when the early Americans blended their knowledge with the Native Americans. The knowledge continues today because the information has been handed through many generations from mother to daughter.

Herbal medicine was first documented to be used by physicians in 1600, 1700, 1800, and the early 1900's. The physicians are said to have used Echinacea and garlic to heal patients.

The use of herbal medications in the west began to wane in the 1930's. However, the Europeans and Asians never stopped developing their herbal medication practices. The Europeans and Asians have continued with much success in the development of
herbal remedies. Today, the desire of American to find alternatives to high prices and potential side effects has kept the world moving toward increased herbal use (Dollenmore, 1995).

**Allopathic Medicine versus Herbal Medicine**

The usual medicine practiced by physicians is known as allopathic medicine. This medicine is also known as “regular medicine,” “orthodox medicine,” “conventional medicine,” or “scientific medicine” (Weil, 1983).

Conventional medicine is undergoing a vast amount of change today. There is a rising public dissatisfaction with conventional medicine and the practitioners of today. The public has demanded a wider range of participatory rights in the clinical relationship. The legal recognition of the client’s right for self-determination in acceptance or rejection of medically recommended treatments is a primary concern for the client and the practitioner. The change in the profile of health problems among the population, access to the increasing technological advancement, the increase in attendance to ethical conflicts, the increase in ethnic diversity and multiculturalism involved in American society today has changed the health care environment more than ever before (O’Connor, 1994).

The future of allopathic medicine will continue to change. As a general rule, the physician provides advice about the specific complaint and recommends the initiation of a scientifically accepted treatment regimen. Although rare, the physician may also inquire into and make recommendations about how the client conducts social activities and how the client may improve his/her environment. During the evaluation the physician may
apply the principles of preventive medicine for conditions producing symptoms that are discovered during the course of the evaluation and advise the client how other members of the family or group can prevent illness (Bannerman, Burton, & Chieh, 1983).

The National Institute of Health in Bethesda, Maryland estimates only 10-30 percent of health care worldwide is allopathic, or Western (Pedersen (a), 2000). The general practice rule in allopathic medicine is to determine the specific disease and prescribe a particular remedy (Weil, 1983). The rest of the world’s medical care is what Americans would call “alternative.”

The majority of complaints made against allopathic medicine are that it is too expensive, it is too dangerous, and not effective at treating diseases that really matter. However, the increasing risks and expense involved with western medicine is due to increasing reliance on invasive procedures, technological gadgetry and dangerous drugs (Weil, 1983).

Adverse reactions to medications are the fifth leading cause of death in America. According to the Journal of the American Medical Association, it is estimated that in 1994, 2,216,000 hospitalized patients had serious adverse drug reactions, and 106,000 died as a result of drug reactions from improperly prescribed medications (Winston, 1999).

Allopathic medicine may claim to be the dominant system of therapeutics in the world. However, outside of cities and in nonindustrialized nations, millions of people worldwide still rely on herbalists, Shamans, priests and/or “unorthodox healers.” In contrast, in the urban society of the western world, allopathic medicine is the only
medicine that is taken seriously (Weil, 1983).

At least 25% of all of the drugs that physicians prescribe contain ingredients derived or synthesized from plant medicines. For instance, morphine is an isolated active element of the opium plant. This active element was discovered in 1806, by a German apprentice pharmacist. Another example is the antispasmodic atropine which comes from the leaves of Belladonna. The popular, highly prescribed medication, digitoxin, is derived from the leaves of the purple foxglove (Dollenmore, 1995).

Non-biomedical health belief systems are alive and well, common and used by all groups of people. Health professionals must recognize the potential use of alternative medications between their clients and ask if they include any alternative medical therapies among their healing resources (O’Connor, 1995).

Many people believe it is just a matter of time before herbal cures become a part or routine medical practice. (Holcomb, 1999) The World Health Organization (WHO) recognizes that herb use is increasing. The WHO estimates that 80% of the world population still relies on herbal medications or traditional medicine for their primary health care (Foster, 1996).

Among those users of herbal medicine, the major reasons for herbal use are to maintain health, prevent specific diseases, and to treat disease or ailments. (Dollenmore, 1995) Many clients seek alternative healing resources due to the desire to use a different cognitive framework. Some clients also seek herbal medicine to fulfill their desire for a specific therapeutic intervention (O’Connor, 1995).
Homeopaths in alternative medicine are the equivalent to the physician in allopathic medicine. Homeopaths believe people get sick in an individual way, showing distinctive patterns of symptoms. Homeopaths do not believe in the existence of “disease entities” such as hepatitis, or similar symptoms. Homeopaths focus on the disturbance of organ function and prescribe care accordingly. Homeopaths identify the particular pattern of symptoms of an individual client using curious questioning. In homeopathic practice, little emphasis is placed on physical diagnosis, on examination or extensive testing of the client (Weil, 1983).

**Herbal Use Today**

Many consumers of herbal medications base their usage on nine principles of health and illness. Weil (1993) states these principles are as follows:

- Perfect health is not attainable.
- It is all right to be sick
- The body has innate healing abilities
- Agents of disease are not causes of disease
- All illness is psychosomatic—having a mind and body component
- Subtle manifestations of illness precede gross ones
- Everybody is different
- Everybody has a weak point
- Blood is the principle carrier of healing energy

The users and practitioners of herbal and other alternative medicines are striving to gain acceptance. However, gaining acceptance for new health practices is a complex and delicate operation in all cultures (Bannerman, Burton & Chieh, 1983). Most consumers who use herbs consider them safe, effective and reasonably priced (Winston, 1999).
Herbs are the fastest growing product in the dietary supplement industry. Herbs are no longer found just in health food stores, or available from mail order houses. Herbal merchandising is big business. Herbs can be found in pharmacies, supermarkets, and mass merchandisers (Foster, 1996).

According to The World Almanac & Book of Facts 2000, the sales of Echinacea have increased from 170 million dollars in 1995 to 300 million dollars in 1998. Similarly, the sales of Gingko in 1995, which was 170 million dollars, have increased 310 million dollars. In 1995, the sale of Ginseng was 190 million dollars. The amount of sold in 1998 increased to 250 million dollars. St. John’s Wort accounted for 10 million dollars of herbal sales in 1995, but this amount increased to 290 million dollars in 1995. Ephedra sales have demonstrated a dramatic increase in sales over the last five years. It is estimated three billion servings of Ephedra are consumed annually (www.ephedrafacts.com/qa.htm)

Pedersen (a) (2000) suggests that consumers who use herbal remedies should be knowledgeable about the herb(s) they consume and know the answers to the following questions:

- Have I conducted background research on the herb?
- What condition am I taking the herb for?
- Am I taking medications or other herbs that may affect the herbs functioning?
- Do I have a contraindicated pre-existing condition?
- Am I pregnant, trying to conceive, or nursing?
- Have I consulted a physician or a herbalist before taking the herb?
- Do I know the proper dosage for the herb?

When a physician or health care professional suspects a client is involved in the use of herbal medicine or other alternative therapy, the health care professional must
facilitate communication with the client in order to promote full disclosure of any non-allopathic resources they use. The health care professional should ask if the client is interested in non-conventional health belief and practices. This question offers the client opportunity to discuss current use, any thoughts of starting use, or questions about how herbal medications may help their disease process. Depending on the client’s answer, the health care professional will continue to provide information (Appendix B). If the client denies any interest, the point to continue is null. However, if the client expresses interest in alternative therapies, the provider should explore the client’s history to assess if there are any health risks involved that may contraindicate the herbal remedy’s use. If there is health risk involved, the clinician must assess the client to see if the commitment to herbs is strong. If the client is strongly committed, and there is presence of health risks, the clinician should seek to minimize the risk to the client and maximize effective treatments, while attempting to dissuade the client’s usage while emphasizing medical resources, such as non-biased educational references. If the client has health risks but is not strongly committed, the clinician should offer to be a source of information and develop an open relationship with the client to facilitate information exchange (O’Connor, 1995).

**Methodologies for Specific Herbs**

The top selling herbs in 1998 were Echinacea, Ephedra, Gingko, Ginseng, and St. John’s Wort (World Almanac, 2000). Considering the increased incidence in use of these herbs, it is beneficial for health care professionals to be aware of specific facts surrounding the use of these herbs. This awareness is not to suggest health care professionals should limit their knowledge to the facts presented here, but should have
knowledge of the most popular herbals and access to information about other herbals as
the needs are presented.

**Future of Herbal Medications**

What is the predicted future for herbal medications? This question could have as
many responses as there are herbal medications on the market. According to Dutermine
and Mitra (2000), herbal medicine must adopt the trusted model of pharmaceutical grade
research and manufacturing, to ensure safety, efficacy, and consistency of its products.
Only a handful of companies in the world currently apply such standards to the
production of herbal medications.

A second suggestion for herbal medication success is that the scientific
community and regulator agencies must acknowledge and understand the uniqueness of
herbal medications in the health care continuum. The third and final change on which
herbal medication acceptance depends is society as a whole must accept that “instant
solutions” do not provide optimum health care.

Westerners are accustomed to “quick fix” for problems—that is, treating symptoms
after they have surfaced and expecting rapid relief. But while herbal medications take
more time to achieve their desired results, they allow for sickness prevention, health
maintenance, and an improved quality of life overall (Dutermine & Mitra, 2000).

Will herbal medications continue to be used in research and development of new
treatments in the future? This question is beyond the scope of this study, however,
sources indicate new studies are being developed. Currently, compounds from daffodils
have been tested with positive results in the treatments of myasthenia gravis and multiple
sclerosis. Researchers are also investigating the use of Lady’s slipper for the use in the treatment of hypertension (Hastings Fadiman & Gordon, 1980).

**Herbal Medicines Into Practice**

Nurses have long been professionals who possess a multitude of skills in patient education. Nurses are now facing new challenges with the growth of herbal medication use. Herbal medication use for various health problems is not a new phenomenon. Due to interactions between prescription drugs and herbal medications, nurses find themselves assessing their patients for herbal use, with limited scientific data to support collaboration with physicians or the patients.

Nurses must be aware of their clients’ use of herbal medications by their clients. Nurses must respect the client’s rights to consume herbal medications, acknowledge the use, encourage continual communication to health care providers and be willing to learn about herbal remedies from different sources (Tolstoi, 2001). Nurses have an obligation to teach their clients about potential interactions. The nurse has an obligation to warn the client when and if there is a potential for harm (Tolstoi, 2001).

How do nurses change their practice to incorporate herbal medications? Nurses are educated in the care for others using principles explained and supported by nursing theory. Theory-based practice is reflective practice—where the nurse provides care and thinks about the given care to ensure it is consistent with stated values and principles. Nursing theory provides language, concepts, and a worldview to reflect on nursing care and on the use of herbal medicines (Frisch, 2001).
Chapter 3
Methods and Procedures

Research Design

A pre- and posttest one group design was utilized for this study. A researcher-developed questionnaire was given to the subjects prior to and following an educational in-service to assess change in knowledge and attitudes of nurses regarding herbal medication use.

Sample & Setting

The convenience sample consisted of 51 nurses employed at a 194-bed southern Kentucky hospital. The sample consisted of licensed practical nurses as well as registered nurses. No power analysis for sample size determinations was computed due to the descriptive nature of this study.

Measurement Methods

Prior to the intervention, each subject was requested to fill out a demographic data sheet containing questions regarding age, gender, educational background, years of experience and current clinical position (Appendix C).

In addition to the demographic data sheet, subjects were given a researcher-developed questionnaire (Appendix D). The participants were asked to complete the questionnaire before and after the in-service on herbal medications. The questions measured each subject’s knowledge and attitudes regarding herbal medication use. The attitude items were measured using a Likert type scale of four choices indicating (1) strongly disagree, (2) disagree, (3) agree, and (4) strongly agree. The knowledge items
were presented using either a multiple choice or true/false format. Content validity was determined by three (3) doctorally prepared experts in the field of nursing, who evaluated the 25 items. The questionnaire was given to the subjects prior to exposure to a researcher developed informational in-service. After completion of the in-service, the subjects were asked to complete the same questionnaire. It was the goal of this study to assess any gain in knowledge or change in attitude regarding herbal medications following an educational intervention.

**Procedure**

This study was conducted using the following procedure. The in-service was initially presented to appropriate facility directors for approval (Appendix A). The in-service was scheduled at convenient times for the participants. An explanation of the study with an invitation to participate was given. For those subjects volunteering to participate, a signed consent was obtained (Appendix B). Each subject received a copy of the consent form for his/her record. If the potential participants had questions, they were answered prior to the beginning of the in-service. An informational packet was prepared for all attendees of the in-service. This packet contained a consent form (Appendix B), a demographic information sheet (Appendix C), pre-test/post-test questionnaire form (Appendix D), and an educational packet summarizing the action of the herbs discussed. Data were collected on scannable answer sheets which were electronically read using scanning equipment interfaced with a statistical analysis program (SAS). Demographic data were entered into SPSS-PC and double checked for accuracy.
Data collected from the knowledge questionnaire included pre-education summed scores, and post-education summed scores. The attitude items were collapsed into dichotomous varieties indicating agreement or disagreement with the statement.

The participants were also given hand outs for future reference. These hand outs were prepared in conjunction with the hospital patient and staff education committees.

**Ethical Considerations**

This study was approved by the HSRB committee of Western Kentucky University. This review helped to assure ethical conduct of this research, and the safety of the study participants. The clinical agency’s Research Review Board also reviewed the proposal for adherence to ethical standards (Appendix A). The proposed study and intentions of the researcher were submitted to a thesis committee comprised of three faculty members of Western Kentucky University.

This research study placed the participants at minimal risk of injury. The information gained from this research study provided baseline knowledge and data on how educational strategies may influence or change the nurse’s knowledge, attitudes and opinions on herbal remedies’ use. In addition, the study increased the nurses’ awareness of potential interactions between prescription medications and herbal medications.

**Data Analysis**

Using the SAS and SPSS-PC computer programs, the demographic data were analyzed using descriptive statistics, Chi-Square and T-test measurements. Data were analyzed to determine if demographic data (age, gender, educational preparation, years of experience, and current area of practice) influenced baseline knowledge. Data were also
analyzed to determine if an educational in-service affected the knowledge of or attitudes of nurses toward herbal medications. An alpha level of 0.05 was used. The research questions were as follows:

1. Is there a difference in baseline knowledge as a function of age, gender, educational preparation, years of clinical experience and current area of practice.

2. Is there a difference in nurses knowledge and attitudes following an educational in-service on herbal remedy use.

Question one was analyzed using Chi-Square measurements. Question #two was analyzed using a T-test for related samples.

**Communication of Findings**

The findings of this study were shared with the members of the thesis committee as well as the managers of the clinical facility where the study was completed. The findings of this study will be presented during a poster presentation at Kappa Theta Research Day and possibly an appropriate journal such as a corporate hospital journal, nursing journal, or publication for herbal consumers.

A copy of the study has been presented to the health care facility in which the study was conducted. A bound copy of the thesis was placed in the library of Western Kentucky University as well as the Department of Nursing in order to share the findings with interested readers.
Summary

In this chapter the research design, methods and procedures have been described. This study was conducted at a 194-bed public hospital in southern Kentucky. The staff members were assessed for attitudes and knowledge of herbal medications using a test/retest method. The SAS and SPSS-PC computer programs were used to analyze the demographic data, as well as the data collected on the pre-education and post-education questionnaires. The findings of this study were communicated to the clinical facility as well as the thesis committee. Through an appropriate publication, data from this study will provide knowledge to physicians, nurses, and health care consumers.
Chapter 4
Findings

Introduction

Demographic data were collected from the participants including gender, age, education, years of experience, and area of practice. Comparisons of baseline and post-intervention data regarding the knowledge of selected herbal medications are reported. The participants also reported attitudinal data regarding herbal medication use before and after the intervention. These data were analyzed using Chi-Square.

In this study, the researcher planned to reach approximately 50% of the clinical-based nurses (approximately 75 nurses) working at the facility at the time the study was conducted. However, due to a large number of employees relocating to other facilities, the final number of participants was 51.

The participants (n=51) were of 96% female and 4% male. The educational level of the participants was 27 associate-prepared, nine baccalaureate-prepared, 12 licensed practical nurses, one diploma educated, and two masters-prepared nurses.

The participants varied in age from 21 years to 63 years, with a mean age was 39.3 years. Years of experience in nursing ranged from a few weeks to 41 years, with a mean of 9.0 years. The participants were primarily staff nurses (88%). Participants were also asked to record their practice area. This information was included to determine if the sample was representative of the current staff composition. The following table depicts this analysis:
Table 1: Participant Composition Compared to Current Staff Composition

<table>
<thead>
<tr>
<th>Area of Practice</th>
<th>Study Participants</th>
<th>Current Staff Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical Care</td>
<td>26%</td>
<td>20%</td>
</tr>
<tr>
<td>Emergency Care</td>
<td>16%</td>
<td>9%</td>
</tr>
<tr>
<td>Medical/Surgical</td>
<td>54%</td>
<td>61%</td>
</tr>
<tr>
<td>Other</td>
<td>4%</td>
<td>10%</td>
</tr>
</tbody>
</table>

The participants reported their current position in nursing. Nurses involved with management level duties including, but not limited to, unit managers and team leaders represented 12% (n=6) of the sample. The remaining 88% (n=45) of the participants were staff level nurses. Baseline data were analyzed to determine if differences in knowledge and attitudes as a function of the following demographic factors: age, gender, level of education, years of experience, and practice area. No significant differences were found.

**Cognitive Findings**

The cognitive portion of the questionnaire consisted of fifteen knowledge-based questions (Appendix D). The raw, baseline (pretest) scores were compared to the post-intervention scores, using a paired t-test analysis for related samples.

The mean score on the pretest was 9.9 (range = 4-13) (maximum score 15). The mean score on the posttest was 12.6 (range =9-15) (maximum score 15). Post-test scores demonstrated a significant improvement in knowledge after the in-service (t=8.63)(p<=0.001).
Since participants included two masters prepared nurses, the data of these two individuals were initially considered to be destroyed due to fear of bias. However, the raw scores of both questionnaires did not range from the normal distribution of scores. In order to assess for biases based on prior exposure or education on herbal use, the participants were asked if they had read or had been exposed to information over the past six months. Less than half of the participants (39%) had read articles or had prior education on herbal medications prior to the in service. The participants’ responses were separated into two groups, those with prior information and those without prior exposure. The scores of the participants with prior exposure did not demonstrate a higher score from the normal distribution.

**Attitudinal Findings**

The participants were asked ten (10) attitudinal questions. These questions were reviewed by three doctoral level educators in nursing to assure content validity. The participants answered completed the questionnaire prior to the informational in-service and following the in-service (Table 2). The analysis revealed a significant change in participant attitude in two areas following the in-service. When asked if herbal medications are believed to be beneficial (question 17), more participants believed herbal medications to be beneficial prior to the in-service compared to following the in-service ($\chi^2=4.67, p<0.05$).

Participants were asked if they believed herbal medications are safe (question 23). According to responses on the pretest, agreed herbal medications are not safe. However, over half of the participants (56%) agreed herbal medication are not safe after participating in the intervention ($\chi^2=13.59, p<0.001$).
Interestingly, when the participants were asked if they had personally used herbal medications, the responses did not change significantly. Less than one-third of the participants (30%) denied having used herbal medications.

Table 2: Number and Percentage of Nurses Agreeing with Herbal Attitudes:

<table>
<thead>
<tr>
<th>Question</th>
<th>Pre-test</th>
<th>Post-test</th>
<th>Chi-square</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>16. The FDA should regulate herbal medications more closely.</td>
<td>45</td>
<td>88</td>
<td>46</td>
</tr>
<tr>
<td>17. I believe herbal medications are beneficial.</td>
<td>41</td>
<td>80</td>
<td>32</td>
</tr>
<tr>
<td>18. I believe it is important for nurses to be knowledgeable about herbal medications.</td>
<td>48</td>
<td>94</td>
<td>49</td>
</tr>
<tr>
<td>19. I have had patients ask for my opinion and/or information about herbal medications.</td>
<td>25</td>
<td>49</td>
<td>25</td>
</tr>
<tr>
<td>20. I have personally used herbal medications or dietary supplements.</td>
<td>36</td>
<td>71</td>
<td>34</td>
</tr>
<tr>
<td>21. I have had patient list herbal medications as part of their home medication when giving a history.</td>
<td>25</td>
<td>49</td>
<td>26</td>
</tr>
<tr>
<td>22. I feel comfortable in discussing herbal medications with my clients.</td>
<td>8</td>
<td>16</td>
<td>14</td>
</tr>
<tr>
<td>23. Herbal medications are not safe.</td>
<td>10</td>
<td>20</td>
<td>28</td>
</tr>
<tr>
<td>24. It is important for the health care provider to ask about herbal medication use.</td>
<td>47</td>
<td>92</td>
<td>49</td>
</tr>
<tr>
<td>25. I provide counseling for my clients when they ask about herbal medications.</td>
<td>13</td>
<td>25</td>
<td>17</td>
</tr>
</tbody>
</table>

*p = < 0.05  **p = < 0.001
Chapter 5
Discussion

Introduction

In this chapter, the major findings are discussed. Limitations, research implications, as well as theoretical and practice implications are addressed.

Major Findings

Research question one asked if a difference in baseline knowledge related to herbal medication use existed as a function of age, gender, educational preparation, years of clinical experience and current area of practice. The pretests scores were analyzed using chi-squared tests. The data did not demonstrate an increase in baseline knowledge as a function of demographic data.

These results were an unexpected finding. It must be considered that the participants can learn about herbal medicines from brochures, news media, the Internet or peers. It is further theorized that these results may be altered with a larger sample size or with replication of the study. Many of the participants live near the facility where the study was conducted and are frequently exposed to similar brochures at community stores, ant through media exposure. It is likely that information about this increased use of herbal remedies among members of a peer group.

The participants were questioned regarding previous exposure to literature about herbal use that may have influenced their baseline knowledge. However, the wording of the question did not specifically mention media stories, the Internet or other forms of informational enhancement. The participants may not have considered previous exposure on media programs or incidental information from brochures as previous exposure. It is
further speculated that since this study focused on the top-five selling herbs in the United States, the exposure to incidental information may have occurred.

**Research question two** asked if there was a difference in nurses’ knowledge and attitudes between pretest scores and posttest scores following an educational in service on herbal medication use. The pretest and posttest knowledge scores were analyzed using paired t tests. These findings represented a statistically significant increase in knowledge following the educational in service ($t=8.63, p=0.001$). In this study, demographic factors did not influence baseline knowledge. These data will be valuable in evaluating knowledge and educational needs of health care staff members.

The responses to the attitudinal questions were analyzed using Chi-square. There were significant changes in attitudes as it related to the safety, as well as benefits of herbal medications. Following the intervention, fewer participants believed herbal medications are beneficial ($\chi^2=4.67, p=0.05$), and more nurses felt herbal medications are not safe ($\chi^2=13.59, p=<0.001$).

The use of herbal medications continues to be a rapidly increasing practice in medicine. Nationwide individuals are embracing this trend due to the holistic nature of herbal medicines. Nurses are seeking education from numerous sources such as continuing education offerings, Internet web sites, or holistic nursing newsletters (Frisch, 2001).

It is important for health care facilities to take an active position in staff education. Educational programs can be linked with clinical protocols used in the facility. Also, if the staff receives similar educational opportunities, there will be fewer conflicting facts presented to patients. Improved continuity of care, as well as dismissal
of inaccurate facts, will be achieved.

Staff education and skill improvement are vital to the survival of a facility. The staff should be annually updated on new advances in herbal medicine. This practice will allow for continued growth of staff and an excellent opportunity for self-evaluation. This system will afford an opportunity for the facility to provide feedback to nurses regarding changes in herbal use, prevention of drug-drug interactions and increase client satisfaction with staff knowledge (Oermann, 2000).

The meaning of the findings of this study has two aspects. First, the findings stress the importance of having knowledge of the effect of herbal medication on the body when taken with certain prescription drugs and the potentially serious adverse reactions (tables 3-7). The staff must make decisions about their attitudes regarding the use of herbal medications in order to discuss herbal use in a nonjudgmental manner with the client. These feelings may be influenced by family traditions, or socioeconomic status. Second, when developing an educational program on herbal medications, all staff members regardless of demographic factors should be targeted. A nurse needs to be well educated in factual data regarding herbal medication in order to provide accurate information for clients. In today’s health care market, when timely disease treatment is crucial, interactions with clients who asks questions about herbal use may take place during admission assessments, during transport through the facility, or when reviewing medications during a discharge instructional session.

**Limitations**

This study has limited generalizability due to the use of a convenience sample. The sample consisted of LPN, ADN, BSN, and MSN educated nurses. The variation in
education may affect knowledge of pathophysiology and pharmokinetics.

The convenience sample contained new graduate nurses as well as experienced nurses. It may be possible that the new graduate nurses may have been exposed to herbal medication interactions in their nursing programs. Because the use of herbal medication has grown over the past decade, this practice is frequently included in a pharmacology course. It should be noted that an ADN program may not contain a separate pharmacology course, whereas BSN and MSN programs have separate pharmacology courses. The initial plan was to be conducted at scheduled in-services with specific staff members, at the discretion of the unit managers. However, due to the multiple responsibilities of nurses and the limited number of staff members the in-services were conducted in areas of practice and at convenient times for staff. Some in-services were conducted during the predawn hours. Therefore, the time of day may have had some influence on participants’ ability to retain knowledge, thus affecting their scores. Also, some participants may have felt coerced to attend in services or may have completed questionnaires quickly in order to return to their work routine.

Another limitation in this study involves the use of researcher-developed questionnaires. No other questionnaires were available to assess the knowledge specific to the five herbs examined in this study. However, the questionnaires were reviewed by a panel of experts to enhance content validity.

The convenience sample contained nurses ranging in age 20-63. It is important to recognize the differences in the nurses of this sample. Their age reflects differences in life experiences, view of the world and of medicine. They may also vary in their cultural beliefs and influences.
The study has limited generalizability due to testing. The study was conducted as an educational in-service. However, the posttest questionnaire was administered immediately following the educational in-service. The in-service lasted approximately 30-minutes. Therefore, some participants may have remembered the questions and the inaccurate responses. Some participants may have performed better due to the limited amount of time lapsed from the information being given and the taking of the posttest.

This study was conducted in a rural, southern Kentucky city. Therefore, family tradition and socioeconomic status of the participants may have influenced the attitudinal portion of the test.

**Implications for Research**

The study findings have implications for research, theory and practice. Future research is needed to explore interactions with existing as well as new medications and herbal medications. More research is needed to explore nurse' knowledge and attitudes in different geographical areas. Further research is needed using a qualitative design. This type of design would allow nurses to express their feelings regarding herbal medications.

According to Henderson’s Theory of Basic Care Components, the nurse functions to aid the client until the client can reach independence. This assistance involves focusing on the patient and the environment to provide safety, and health promotion. It was the goal of this study to explore the nurses’ attitudes and knowledge of herbal medications. If the nurse is knowledgeable about herbal remedies and uses this information when assessing the individual client’s educational level, he or she will be able to assist the individual toward independence in making healthy choices. Although
attitudes and knowledge did not vary as a function of demographic data, findings revealed a significant change in knowledge following the intervention. This change in posttest data following the intervention emphasizes the importance of increasing staff knowledge on current trends in herbal medications.

**Implications for Practice**

Several practice based implications became evident while conducting this study. The presentation of current knowledge on herbal medications not only made nurses feel more comfortable in discussing herbal use with clients but also paves the way for more effective communication in this area between the nurse and client.

Clients believe because a product is sold as “all natural” it is safe. To address this misnomer, communication between the nurse and client is seen as an opportunity to raise awareness of the potential dangerous interactions between prescription drugs and herbal remedies. Today’s health care professionals must strive to encourage open communication between health care providers and the client regarding the use of herbal medications.

**Conclusions**

In conclusion, this study emphasized the value of an educational intervention on herbal remedies. Since baseline knowledge did not differ among nurses as a function of demographic factors, the importance of targeting all nurses was appreciated. Factual information about herbal remedies, potential adverse effects, and possible interactions with drugs will positively impact the client care.
Bibliography


http://a-better-way.com/ephedra.html
http://vm.cfsan.fda.gov/~rd/97064a.html
http://www.angelfire.com/ut/virginiahenderson/concepts.html
http://www.dawsoncollege.qc.ca/depts/Nursing180-110/connurmod.htm
http://www.ephedrafacts.com/qa.htm
http://www.ephedra.demon.nl/stories/ephedrine.htm


April 16, 2001

To Whom it May Concern:

Janie Davis, RN, BSN, a graduate student in your MSN program, has approached Jennie Stuart Medical Center with a request to conduct research focused on the nurses current level of knowledge of herbal medications and possible interactions with anesthesia or other therapies. The intent of this letter is to advise you of our desire to support Ms. Davis in her efforts. We endorse her concept, recognize the need for this knowledge base to be developed by our clinical staff and welcome her presence and efforts in this research project.

Should you have questions or concerns, please feel free to contact me at 270-887-0424. Thank you for allowing JSMC this opportunity to support research and the development of a data base beneficial to all.

Very sincerely,

Catherine H. Abrams, RN, CNAA, BC
Vice President, Clinical Services
APPENDIX B

Informed Consent

Project Title: **Attitudes and Knowledge of Nurses regarding herbal medication use**
Investigator: **Janie Davis, RN, BSN  Department of Nursing  (270) 755-3215**

You are being asked to participate in a project conducted through Western Kentucky University and Jennie Stuart Medical Center. The University requires that you give your signed agreement to participate in this project.

The investigator will explain to you in detail the purpose of the project, the procedures to be used, and the potential benefits and possible risks of participation. You may ask her any questions you have to help you understand the project. A basic explanation of the project is written below. Please read this explanation and discuss with the researcher any questions you may have.

If you then decide to participate in the project, please sign on the last page of this form in the presence of the person who explained the project to you. You should be given a copy of this form to keep.

1. **Nature and Purpose of the Project:**
The purpose of this project is to explore the attitudes and knowledge of nurses at Jennie Stuart Medical Center as it relates to selected herbal remedy use.

2. **Explanation of Procedures:**
A step-by-step explanation of the project will be provided to registered nurses employed by Jennie Stuart Medical Center. Ms. Davis will answer any questions needing clarification regarding the specific aspects of this project to the subject's satisfaction. Informed consent will be obtained from the nurses agreeing to participate in this project. A pre-education survey will be administered to the participants. An educational in-service will be provided to all staff nurses attending the scheduled meetings. Following the educational in-service, a post-education survey will be administered to the participants.

3. **Discomfort and Risks:**
There are minimal risks to the participants of this project which have been identified. The knowledge gained from this in-service may alter the attitudes and/or knowledge of the participants toward the use of selected herbal remedies.

4. **Benefits:**
The participants will benefit from an immediate increase in knowledge related to scientifically documented interactions and potential dangers related to herbal remedy use.
5. **Confidentiality:**
The identity of all participants in this study will be protected. The participants in this study will be given a pre-coded questionnaire asking specific questions regarding his/her educational background and work history. The final results of this study will be reported as aggregate findings. There will be no reporting of data that may lead to the identification of a specific participant.

6. **Refusal/Withdrawal:**
Refusal to participate in this study will have no effect on any future services you may be entitled to from the University. Anyone who agrees to participate in this study is free to withdraw from the study at any time with no penalty. Anyone wishing to withdraw from this study should contact:

Human Protections Coordinator  
Office of Sponsored Programs  
Western Kentucky University  
106 Foundation Building  
Bowling Green, Kentucky, 42101  
(270) 745-4652

*I understand also that it is not possible to identify all potential risks in an experimental procedure, and I believe that reasonable safeguards have been taken to minimize both the known and potential but unknown risks.*

__________________________________________  
Signature of Participant Date

__________________________________________  
Witness Date

THE DATED APPROVAL ON THIS CONSENT FORM INDICATES THAT THIS PROJECT HAS BEEN REVIEWED AND APPROVED BY THE WESTERN KENTUCKY UNIVERSITY HUMAN SUBJECTS REVIEW BOARD TELEPHONE: (270) 745-4652
APPENDIX C
Demographic Data Collection Guide

Subject #____________________

Directions: Fill in the blanks with the appropriate information or circle the appropriate information.

Please circle your appropriate gender.

Female    Male

Please give your current age.____________________

What is your highest degree completed? (Please circle the appropriate title)

ADN    BSN    Diploma    LPN

How many years of experience do you have?______________

What is your current area of practice? (Please circle the appropriate area)

Staff    Management

Surgical    Medical    Emergency    Critical Care    Same Day Surgery

Have you read or been exposed to literature in the past 6 months that has provided you with information on herbal medications, or alternative medicine?

Yes    No

Thank you
APPENDIX D

Questionnaire

Subject #______________

Directions: Circle the correct answer

1. Which of the following will potentiate anticoagulants and, therefore may increase the incidence of bleeding when taken with anticoagulants?

2. Which of the following will increase the effects of antidepressant therapy when taken at the same time?

3. Millions of dollars are spent annually on herbal medications.
   A.) True  B.)False

4. Which of the following has documented interactions with anesthesia products?

5. The Federal Drug Administration (FDA) regulates the content of herbal medications.
   A.) True  B.)False

6. Herbal medications used today may have originated from traditional Chinese medical practices.
   A.) True  B.)False

7. Which of the following boosts the body’s immunity by increasing the ability to “kill off” harmful bacteria?

8. Which of the following is used in some weight loss therapies?

9. Echinacea is often used to treat acne, bronchitis, colds or flu, shingles and ear infections.
   A.) True  B.)False

10. Gingko use is contraindicated for hemophiliacs.
    A.) True  B.)False

11. Ginseng is used to treat chronic fatigue syndrome.
    A.) True  B.)False

12. Which of the following may alter the therapeutic levels of digoxin?
13. Many people who use herbal medication believe the blood is the principle carrier of healing energy.
A.) True  B.) False

14. Which of the following is used to help memory problems?

15. Some herbal medications must be taken over several weeks to gain optimal effects.
A.) True  B.) False

For questions 16-25, circle the most appropriate response based on your perceptions.

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>16. The FDA should regulate herbal medications more closely.</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>17. I believe herbal medications are beneficial.</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>18. I believe it is important for nurses to be knowledgeable about herbal medications.</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>19. I have had patients ask for my opinion and/or information about herbal medications.</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>20. I have personally used herbal medications or dietary supplements.</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>21. I have had patients list herbal medications as part of their home medication when giving a history.</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>22. I feel comfortable in discussing herbal medications with my clients.</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>23. Herbal medications are not safe.</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>24. It is important for the health care provider to ask about herbal medication use.</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>25. I provide counseling for my clients when they ask about herbal medications.</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
</tbody>
</table>
Table 3: Herbal Summary

<table>
<thead>
<tr>
<th>Herbal Name</th>
<th>Alternative Name</th>
<th>Action</th>
<th>Side Effects</th>
<th>Interactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Echinacea</td>
<td>American Coneflower, black-eyed Susan, comb flower, Indian head, Indian snake root, Kansas snakeroot, narrow-leaved cornflower, Simpson root, sarry root</td>
<td>Boosts the body’s ability to kill off harmful bacteria, works by helping the body produce interferon, boosts immunity</td>
<td>May suppress immunity if taken greater than four weeks, allergic reactions possible if client allergic to aster family pollen,</td>
<td>anabolic steroids, amiodarone, methotrexate, ketoconazole, cyclosporine</td>
</tr>
<tr>
<td>Gingko</td>
<td>Bai Guo, Ginkgo Biloba, Kew Tree, Maidenhair, Silver Apricot, Yin Guo, Ying Xing</td>
<td>astringent, circulatory stimulant, expectorant, vasodilator</td>
<td>May stabilize the progression of dementia, CNS alterations</td>
<td>Clients with hemophilia</td>
</tr>
<tr>
<td>Ginseng</td>
<td>several varieties</td>
<td>improves body’s ability to fight stress, may improve anemia, may increase resistance to colds, flu, treatment of hyperglycemia, hypertension, menopausal symptoms</td>
<td>bleeding, headaches, trembling</td>
<td>warafin pheneizine sulfate, digoxin</td>
</tr>
<tr>
<td>Ephedra</td>
<td>Desert Herb, Ma Huang, Morman Tea, Ephedrine (synthetic)</td>
<td>treatment of asthma, natural decongestant, antihistamine, thermogenic effect, common cold, hayfever, bronchitis, arthritis, fever, hypotension, urticaria</td>
<td>tachycardia, hypertension, insomnia, panic attack, headache, nervousness, anxiety, nausea, prostate/urinary problems, flushing, tingling, vomiting.</td>
<td>Clients with cardiac problems, thyroid disease, diabetes, or those taking MAO inhibitors, theophylline, cardiac glycosides, or caffeine-containing products</td>
</tr>
<tr>
<td>St. John’s Wort</td>
<td>Devil’s Scourge, Goatweed, Grace of God, God’s Wonder, Klamath Weed, John’s Wort, Penny John, Rosin Rose, Tutsan, Witch’s herb</td>
<td>strengthens immune system, inhibits muscle cramps, dilates blood vessels, promotes circulation,</td>
<td>inhibits MAO enzymes allergic skin reactions, fatigue, sedation, GI upset, photosensitivity</td>
<td>protease inhibitors, cyclosporin actions, oral contraceptives, lovastatin, warafin, seizure medications, anaesthesia agents, narcotic drugs</td>
</tr>
</tbody>
</table>

(Pedersen (a) (b) (c), 2000) (http://www.ephedra.demon.nl/stories/ephedrine.htm) (http://a-better-way.com/ephedra.com/ephedra.htm) (Klepser & Klepser, 1999)
Table 4: Summary of Clinical Trials on Echinacea

<table>
<thead>
<tr>
<th>Author(s) of Study</th>
<th>Study Design</th>
<th>Sample Size</th>
<th>Analysis of Data</th>
<th>Findings</th>
<th>Side Effects/Interactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Henneicke-von Zeplin, H., Hentschel, C., Schnitker, J., Kohnen, R., Kohler, G., Wusternberg, P.</td>
<td>Randomized, double-blind, placebo-controlled study</td>
<td>n=263: all patients were used. 259 patients were evaluated for primary efficacy analysis (ITT).</td>
<td>Does Radix echinacea reduce clinical symptoms of the “common cold.” Patients who suffered from at least moderate symptoms intensity at baseline, showed response rates (at least 50% improvement of the global score, day 5) of 55.3% in the herbal remedy group and 27.3% in the placebo group (p=0.017; NNT = 3.5) In subgroup of patients who started therapy at an early phase of their col, the efficacy of the herbal remedy was most prominent (p=0.014 for the primary efficacy parameter). The therapeutic benefit of the herbal remedy had continued until the end of the treatment in the total score of symptoms, bronchitis and rhinitis score.</td>
<td>Results were confirmed analyzing only 238 valid cases (VC). The primary efficacy parameters showed the superiority of the herbal remedy over placebo (p&lt;0.05). Effect size was 20.6% (1.7-44.5%; VC). In relation to the general well-being, the effect size was 33.9% of the standard deviation (12.5-55.3%; VC)</td>
<td>The study shows therapeutic benefit and rapid onset of improvement of cold symptoms. If the patient were able to initiate herbal therapy as soon as practical after the start of cold symptoms, benefit increased. There were no serious adverse events.</td>
</tr>
<tr>
<td>Grimm, W., Muller, HH</td>
<td>Randomized control</td>
<td>n=109 Patients with a history of more than three colds or respiratory infections in the preceding year. One patient withdrew before initiation of treatment.</td>
<td>Effect of fluid extract of Echinacea purpurea on the incidence and severity of colds and respiratory infections. The incidence and severity of colds and respiratory infections were determined during 8 week follow-up, based on patient reported symptoms together with findings on physical exam. Relative risks (RR) and 95% confidence intervals (CI) were estimated.</td>
<td>During the 8-week treatment period, 35 (65%) of 54 patients in the echinacea group and 40 (74%) of 54 patients in the placebo group had at least one cold or respiratory infection (RR=0.88%; 95% CI (0.60, 1.22)) The average number of colds and respiratory infections per patient was 0.78 in the Echinacea group and 0.93 in the placebo group. (Difference=0.15;95%CI; -1, +3 days; p=0.45). There were no significant differences between treatment groups in the number of infections in each category of severity. Treatment with fluid extract of echinacea purpurea did not significantly decrease the incidence, duration or severity of colds and respiratory infections compared to a placebo. Side effects were observed in 11 (20%) of the Echinacea group and in 7 patients (13%) of the placebo group (P=0.44).</td>
<td></td>
</tr>
<tr>
<td>Author(s) of Study</td>
<td>Study Design</td>
<td>Sample Size</td>
<td>Analysis of Data</td>
<td>Findings</td>
<td>Side Effects/Interactions</td>
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<tr>
<td>--------------------</td>
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<tr>
<td><a href="http://www.abetterway.com">www.abetterway.com</a></td>
<td>Randomized</td>
<td>n=180</td>
<td>141 completed study p&lt; 0.05 Possibility of rebound symptoms (occurring due to withdrawal of agent)</td>
<td>60% ephedrine with caffeine treatment group, 44% of ephedrine treatment group and 36% of caffeine treatment group experienced side effects</td>
<td>headache, fatigue</td>
</tr>
<tr>
<td>Author(s) of Study</td>
<td>Study Design</td>
<td>Sample Size</td>
<td>Analysis of Data</td>
<td>Findings</td>
<td>Side Effects/Interactions</td>
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<tr>
<td>Pittler, M., Ernst, E.</td>
<td>Double-Blind, placebo controlled trial in the use of gingko in treatment of dementia</td>
<td>n=327 dementia (Alzheimer multi-infarct)</td>
<td>Subjects given 120 mg gingko daily for one year. Only 137 subjects completed the trial. (50% for gingko and 38% for the placebo)</td>
<td>Significant improvements with gingko when compared with placebo as shown with the Alzheimer’s Disease Assessment Scale and a Geriatric Evaluation</td>
<td>Adverse effects were uncommon, but consisted of GI complaints and headache and allergic skin reactions.</td>
</tr>
</tbody>
</table>
Table 7: Summary of Clinical Trials on Ginseng

<table>
<thead>
<tr>
<th>Authors of Study</th>
<th>Study Design</th>
<th>Sample Size</th>
<th>Analysis of Data</th>
<th>Findings</th>
<th>Side Effects/Interactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wiklund, I., Mattsson L., Lindgren, R., Limoni, C.</td>
<td>Randomized double-blind parallel group study on the effects of a standardized ginseng extract on the quality of life and physiological parameters in symptomatic post menopausal women</td>
<td>n=384</td>
<td>Data obtained from validated questionnaires: Physiological General Well-Being (PGWB), Women's Health Questionnaire (WHQ), and Visual Analogue (VA) scales.</td>
<td>The extract showed only a tendency for a slightly better overall symptomatic relief (p&lt;0.1)</td>
<td>None</td>
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<td></td>
<td></td>
<td>193 women completed surveys and were treated with ginseng.</td>
<td></td>
<td>Exploratory analysis of PGWB subsets reported p-values &lt;0.05 for depression, well-being, and health sub-scales in favor of ginseng compared with the placebo.</td>
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<td></td>
<td></td>
<td>191 were treated with a placebo</td>
<td></td>
<td>No statistical significant effects were seen for the WHQ and the VA scales or the physiological parameters, including vasomotor symptoms (hot flushes)</td>
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<td>Mean age 53.5 (+/-4.0 years)</td>
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</tbody>
</table>
Table 8: Summary of Clinical Trials on St. John’s Wort (Hypericum)

<table>
<thead>
<tr>
<th>Author(s) of Study</th>
<th>Study Design</th>
<th>Sample Size</th>
<th>Analysis of Data</th>
<th>Findings</th>
<th>Side Effects/Interactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>K. Linde, G. Ramirez, CD Mulrow, et al</td>
<td>Meta-analysis of randomized clinical trial</td>
<td>n=300</td>
<td>Hypericum alone against low doses of maprotiline, imipramine, or amitriptylline</td>
<td>20% receiving hypericum reported adverse reactions; 36% reported adverse reactions with standard antidepressant</td>
<td>Withdrawals were 0.8% for Hypericum and 3% with standard antidepressants.</td>
</tr>
<tr>
<td>Johne, A., Brockmoller, J., Bauer, S., Mauer, A., Langheinrich, M., Roots, I.</td>
<td>Single-blind Placebo-Controlled Parallel Study</td>
<td>n=12</td>
<td>After 10 days of treatment with hypericum, serum levels of digoxin were decreased by 25%</td>
<td>Comparison with the parallel placebo group after multiple dosing showed a reduction in trough concentrations and Cmax of 33% (P=0.0023) and 26% (P=0.0095). The effect became increasingly pronounced until the 10th day of co-medication.</td>
<td>The interaction of Hypericum extract and with digoxin kinetics was time dependent. The mechanism involved may be induction of the P-glycoprotein drug transporter.</td>
</tr>
<tr>
<td>Woelk, H.</td>
<td>Randomized, multi-center double-blind parallel group trial</td>
<td>n=324</td>
<td>Among the 157 participants taking hypericum mean scores on the Hamilton depression scale decreased from 22.4 at baseline to 12.00 at end point; amount the 167 participants taking imipramine they fell from 22.1 to 12.75.</td>
<td>Hypericum perforatum extract is therapeutically equivalent to imipramine in treating mild to moderate depression</td>
<td>Adverse events occurred in 62/157 (39%) participants taking hypericum and in 105/167 (63%) taking imipramine. 4 (3%) participants withdrew because of adverse events compared with 26 (16%) taking imipramine.</td>
</tr>
</tbody>
</table>