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The inclusion of herbal remedies in the patient care practices of nurse practitioners

Diane Renee Stricker
University of Nevada, Las Vegas

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**THE INCLUSION OF HERBAL REMEDIES IN
THE PATIENT CARE PRACTICES OF
NURSE PRACTITIONERS**

by

Diane R. Stricker

**Associate in Arts
Phoenix College
1980**

**Bachelor of Science in Nursing
Arizona State University
1985**

**Master of Social Work
Arizona State University
1990**

**A thesis submitted in partial fulfillment
of the requirements for the degree of**

Master of Science

in

Nursing

**Department of Nursing
University of Nevada, Las Vegas
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The Graduate College
University of Nevada, Las Vegas

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The Thesis prepared by

Diane R. Stricker

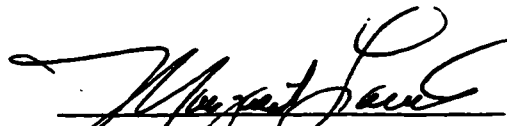
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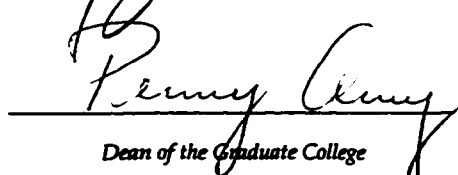
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is approved in partial fulfillment of the requirements for the degree of

Master of Science in Nursing



Examination Committee Chair



Dean of the Graduate College



Examination Committee Member



Examination Committee Member



Graduate College Faculty Representative

ABSTRACT

The Inclusion of Herbal Remedies in the Patient Care Practices of Nurse Practitioners

By

Diane R. Stricker

**Dr. Margaret Louis, Examination Committee Chair
Associate Professor of Nursing
University of Nevada, Las Vegas**

The purpose of this study was to describe the extent that nurse practitioners acquire knowledge, evaluate, recommend, and teach the safe use and acquisition of herbal remedies to their patients. Additionally, the study sought to investigate factors associated with the frequency nurse practitioners recommended herbal remedies. A survey was constructed and mailed to 600 members of the American Academy of Nurse Practitioners nationwide.

Of the 304 returned questionnaires, 264 of the respondents identified exclusively as family nurse practitioners. Because of the low response rate for specialties outside of family nurse practitioners (FNPs), the study sample utilized consisted exclusively of family nurse practitioners.

Results of the study indicated that FNPs are at a minimum, sometimes evaluating the self-care practices of their patients who utilize herbal remedies; recommending herbal remedies; educating their patients about herbal remedies; and

have knowledge of the safe acquisition of herbal remedies. However, a majority of FNP's indicated they do not have knowledge about the safe use of herbal remedies, specifically as it relates to pregnant women and children. A majority of FNP's indicated having some knowledge of herbal remedies and that they learned about them through a variety of ways. Further, it was determined that FNP's were more likely to recommend herbal remedies if they learned about herbal remedies through holistic health magazines, their NP program, personal experiences, scientific journals or books. Further, as the FNP's level of knowledge of herbal remedies increased, so did generally, their frequency of recommending herbal remedies.

As a result of the study's findings, recommendations include that nurses in advanced practice roles develop practice guidelines which ensure the safe use of herbal remedies in patient care practices. It is also suggested that nurse practitioner educational programs should include curricula which instruct in the safe inclusion of herbal remedies in patient care practices.

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CHAPTER I

INTRODUCTION

Introduction to the Study Problem

Since the 1960's there has been a renewed interest by the American consumer for herbal and other alternative therapies for healing purposes (Brown & Marcy, 1991). Studies have shown that the use of alternative treatments are not at the exclusion of seeking conventional medical care (Eisenberg, Kessler, Foster, Norlock, Calkins, & Delbanco, 1993). A majority who seek alternative therapies use them as an adjunct to conventional medicine for purposes of prevention of illness as well as for the treatment of acute and chronic conditions (Engelbretson & Wardell, 1993). A number of factors are speculated to be responsible for this new consumerism. Some of these include the interest in the "natural health" or holistic health movement, emphasis on preventive and self-care, a mistrust of the medical establishment, and the high cost of conventional medicine (Brown & Marcy, 1991; McGregor, 1996).

The history of using plants for medicinal purposes dates back to the origins of humankind. Many modern drugs find their roots in the history of medicinal herbalism. Aspirin, one of the most widely used medications in all of medical history, finds its

beginnings over 2000 years ago in the willow bark. In 1899 the drug, with its analgesic, anti-inflammatory and anti-fever properties was synthesized from substances contained in the bark and introduced to the medical community as aspirin (Culshaw, 1994).

Today, there are many lay books, articles, journals and mass media productions which aim to promote the self prescription of the potential healing powers of plants. Of concern to some health care providers is the issue of safety and the lack of reliable information concerning the use of herbal pharmaceuticals (Youngkin & Israel, 1996; Engebretson & Wardell, 1993). Some herbs which contain potent pharmaceutical properties can be dangerous and even deadly if taken too long, for the wrong reason, or in combination with other drugs or herbs (Krenzelok & Lasek, 1986).

Primary providers of conventional medical care has expanded to include nurse practitioners (Stafford & Appleyard, 1994). Nurse practitioners are advanced practice nurses who have received training, education and certification which prepares them to diagnose and treat acute and chronic illnesses with a variety of methods, including the use of prescription drugs. Nurse practitioners have been trained to elicit health history information from patients which includes information relevant to current and past health practices which may effect a patient's current health status. Information pertaining to the use of pharmaceuticals are incorporated with a patient's current treatment plan, which may include prescription of additional medication, education about dosage, compliance, drug interactions and possible side effects.

Research has shown that approximately 80 million Americans use alternative therapies (Eisenberg et al., 1993). Herbal therapies, a form of alternative therapies, is of particular interest to the nurse practitioner given that many herbal remedies have potent

pharmacological properties, and in fact, many can be harmful, or even fatal, when ingested (Krenzelok & Lasek, 1986).

Little is known about the patient care practices of nurse practitioners in relation to the growing trend of patients utilizing herbal remedies. A review of the literature unveiled only one study referring to the use of alternative therapies by nurse practitioners. McCraw (1994) revealed that of the alternative therapies utilized, herbal therapies were prescribed or recommended to patients (at least sometimes) by 22 % of the respondents. The American Nurses Association lists 25,000 to 30,000 nurse practitioners in the United States (Stafford & Appleyard, 1994). To this end, it is logical to infer that nurse practitioners are treating many Americans who are either interested in or who are using herbal remedies. Given the increase in consumer demand for herbal medicine, nurse practitioners are faced with the challenge of safely and effectively incorporating this alternative therapy into patient care practices.

Problem Statement

There is a deficiency of information concerning the knowledge, use, acquisition and education of herbal remedies in the patient care practices of nurse practitioners.

Purpose of the Study

The purpose of this study was to describe the extent that nurse practitioners acquire knowledge, evaluate, recommend, and teach the safe use and acquisition of herbal remedies to their patients.

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Significance

Alternative therapies and herbal remedies are frequently described in the mass media. Research has shown that in a given year, about one third of all American adults use unconventional medical alternatives (Eisenberg et al., 1993). This is significant given that many herbal remedies have pharmacological properties and thus may impact the status of the consumer's health. Additionally, it has been noted that the vast majority who utilize alternative methods also seek traditional medical care (Eisenberg et al., 1993). However, there remains a void in the literature as to how nurse practitioners are meeting the patient care needs of those who engage in the use of herbal remedies. This descriptive, exploratory study of adult, family and pediatric nurse practitioners, in relation to their care for those who utilize herbal remedies, adds to the current knowledge base regarding patient care practices. Increased knowledge of patient care practices serves to guide further study, educational requirements or new ways to treat patients who utilize herbal remedies.

CHAPTER II

REVIEW OF LITERATURE

Introduction

A review of the literature was undertaken to examine patterns of use of herbs for medicinal purposes as well as nurse practitioners' response to this phenomenon as primary care providers. To gain a full understanding of the significance of herbal medicine, several areas of literature are examined. These include: The history of medicinal plants; their safety and availability; concerns of health care professionals; the reasons and extent people use herbs for medicinal purposes; the role of the nurse practitioner as a primary care provider; and the extent that nurse practitioners are integrating the use of herbal medicines into their practice. Finally, a summary of known and unknown information concerning the practices of nurse practitioners, as they relate to herbal medicine, is provided.

Herbal Medicine

Historical Perspective

Throughout history people have been turning to medicinal plants and other natural materials to provide them with remedies for disease. Discovered in Iraq, in a prehistorical 60,000-year-old Neanderthal grave, was the presence of marshmallow, yarrow, ephedra (an antiasthmatic and cardiac stimulant) and four other plants that may have been used for

medicinal purposes (Lipp, 1996). Ice-age art has made references to the use of medicinal plants in cave paintings and on mammoth ivory (Lipp, 1996). The earliest records describing the use of medicinal plants were written by the Egyptians. The Egyptian Ebers papyrus (c.1550 BC) includes more than 700 prescriptions using natural products such as garlic, linseed, fennel, anise and poppy (Lipp, 1996). In Greece, Aristotle and Hippocrates developed a theory of the body's primary functions which determined the use of medicinal plants for 1,500 years (Lipp, 1996).

Today, virtually one-quarter of all medical prescriptions are based on substances that come from plants, and 80 percent of the world's population (primarily those in developing countries) rely on plant-derived medicine for their health care (Lipp, 1996). During the last four decades many potent pharmaceuticals have been derived from plants. These include pilocarpine (from South American trees) to treat glaucoma, and digitalis (from the foxglove plant found in Europe and the United States) to treat heart failure (Lipp, 1996). Additionally, many other familiar drugs such as aspirin, indocine (an antihypertensive), morphine, ergot (to treat migraine) and atropine can be traced to plant origins (Culshaw, 1994).

However great the number of drugs derived from plants may be, interest by professional drug companies and scientific medical institutions is far less than that expressed by those who seek alternative treatments to orthodox or conventional western medicine (Lipp, 1996; Griggs, 1991). Despite the vast number of documented, pharmaceutically active herbal preparations, the use of plants in conventional American medicine is virtually non-existent. Griggs (1991), in her book, Green Pharmacy, speculates that this is due to the fact that a large percentage of herbal medicinal use is steeped in

folklore and tradition, is unregulated, and is consequently at odds with the scientifically based allopathic medical system which predominates in the West. Additionally, she makes the point that herbal medicines are unpatentable and therefore decrease the financial incentive for research and development by major drug companies in the United States.

In the last 35 years, the use of herbal remedies by the lay person has increased tremendously. Sales of herbal preparations went from virtually zero in the mid-sixties to over two billion dollars in the late 1980's (Griggs, 1991). In 1995 sales of dietary supplements and herbal therapies were estimated to be over 10 billion dollars in the United States ("Health Briefs," 1997). Indeed, interest in and reported benefits of alternative and herbal therapies have been so great by the lay public that in 1992 Congress directed the National Institute of Health to form the Office for the Study of Unconventional Medical Practices ("Medical News," 1992). The office is responsible for evaluating remedies (such as the use of herbs, acupuncture, homeopathy and massage therapy) that are presently considered to be outside conventional medical practices in the United States.

Herbal Medicine as Alternative Medicine

Alternative medicine, also referred to as alternative therapies, unorthodox, unconventional, and complimentary medicine, is a broad term which encompasses many practices, including the use of herbal remedies, massage therapy, homeopathy, rolfing, therapeutic touch, hypnosis, acupressure, acupuncture and chiropractic, to name a few. In their 1993 study of unconventional medicine in the United States, Eisenberg et.al., defined unconventional or alternative therapies as medical interventions not taught widely at U.S.

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medical schools, or generally unavailable at U.S. hospitals. Eighteen types of unconventional therapies are listed including herbal remedies.

According to Zagorsky (1993), alternative therapies are also referred to as “holistic”, “nontoxic” and “folk” remedies. In contrast, allopathic medicine is called “Western”, “conventional” and “traditional” medicine or therapies. Zagorsky (1993) continues by stating that alternative therapies focus on the body’s ability to heal itself, and the interrelationship among the mind, body, and spirit.

Engerbretson and Wardell (1993) make the point that currently in the United States there is no classification system that adequately describes the types of alternative healing practices available. They proposed a “healing matrix” which consisting of three classifications: orthodox, marginal and alternative. The classifications are founded on the extent to which formal or scientific methods are utilized as the foundation for practice. Orthodox (biomedical or allopathic medicine) is considered the official healthcare of the United States and is the basis for medical and nurse preparation. Orthodox medicine is based on formal education and knowledge rooted in scientific principles. Marginal healers also have their preparation based on formal education, however, their education has very limited recognition by orthodox medicine in the United States. Examples of marginal healers are chiropractic, homeopathy, acupuncture and acupressure practitioners. Alternative healing includes methods based in tradition, intuition and experience, rather than formal education. Examples of alternative methods are yoga, therapeutic touch, aromatherapy and herbal remedies. Inherent in the definition of alternative healing practices is the concept that they are not based upon scientific principles and therefore, potentially unsafe for their recipients.

Safety and Availability of Herbal Remedies

In the United States, the Food and Drug Administration (FDA) regulates drugs, foods, dietary supplements and cosmetics. In 1962, the FDA required that all drugs be evaluated for safety and efficacy. Any product that makes a therapeutic claim is considered to be a drug. Prior to this consideration, many herbal manufactures made specific claims about the effectiveness of their products which under the FDA guidelines would classify them as drugs. As a result, manufacturers began marketing herbs as “food” or dietary supplement products (Youngkin & Israel, 1996). Consequently, in 1994, the FDA passed the Dietary Supplement Health and Education Act. Through this document it was ruled that herbs can be labeled with information on their effects on the structure and function of the body as long as manufacturers state that it has not been approved by the FDA and is not intended to be used as a drug (Youngkin & Israel, 1996). Henceforth, the FDA is essentially concerned with the labeling of herbs rather than their efficacy or quality as medicinal preparations.

In the United States there is no standardization on the quality of herbal preparations. Herbal preparations are available as teas, in capsule form, in tinctures or as raw partial or whole plants. These variations cause difficulty in determining the potency of the herbal preparations (Youngkin & Israel, 1996). It is claimed that the only accurate way of determining the amount of the active ingredient is to perform assays. However, some manufactures of the more common plants do provide “standardized” products free of pesticides and contain specific quantities of the given herb (Zagorsky, 1993). For many, the question remains, what dose is enough or appropriate for the prescribed condition? This issue is complicated by the fact that many herbal preparations are used for

multiple conditions (Brown & Marcy, 1991). Also, much of the literature regarding the efficacy of medicinal herbs is based upon anecdotal information (Youngkin & Israel, 1996) and offers little or no objective report on single, let alone multiple uses.

Another issue related to the quality of herbal remedies is availability. Some plants are cultivated and prepared by their consumer. Other herbs are harvested wild which requires accurate identification of the herb to avoid ingestion of a poisonous or toxic substance. Accidental poisoning is a serious risk for those who harvest wild herbs (Krenzelo & Lasek, 1986). Another source is importation which poses its own set of risks. Imported oriental herbal preparations used for arthritis have been found to be laced with dexamethazone and other steroids, which have been added to improve effectiveness (Saxe, 1987).

Concerns of Health Care Providers

Concerned with the growing number of patients using herbal preparations for medicinal purposes, Timothy Saxe, in his 1987 article, "Toxicity of Medicinal Herbal Preparations" warned the medical community that medicinal herbal preparations have the potential to act as powerful pharmacological substances. As such, he identified seven factors associated with medicinal herbal toxicity.

The first factor is dose. As with all drugs, the amount of the herb ingested is directly related to its side effects or adverse reactions. For example a single berry from the nightshade bush contains deadly amounts of atropine, a drug used in the treatment of cardiac disease.

The second factor is duration. Acute exposure of large doses of a herb may cause immediate toxicity while chronic exposure with small doses can cause disease after years of use. An example is the herb sassafras which contains the carcinogen safrole. Usually ingested as a tea, in large doses the herb can cause severe diarrhea while chronic ingestion of the herb has been linked to liver cancer.

The third factor is coexisting disease. For example, a person with disease of the kidney may have exacerbated toxicity or the herbal preparation may exacerbate a renal inflammation.

The fourth factor is improper identification. Deaths have occurred when individuals have eaten “fools parsley” which can resemble carrots or parsley.

The fifth factor is preparation. Certain parts of plants normally thought to be safe can be toxic if ingested. He uses the example of the elderberry tree. The inner bark is used as a purgative and an emetic. The stems however, contain cyanide and are poisonous or even deadly.

The sixth factor is contaminants. Herbs collected wild may have high levels of pesticide or toxins such as lead. Additionally, herbs imported from other countries, with limited food and drug controls, have been known to contain added, often pharmacologically active, substances.

The seventh factor is interactions. Because herbs contain pharmacologically active ingredients, any combination with another herb or drug may lead to a dangerous interaction (Saxe, 1987).

Saxe concludes by stating that health practitioners need to be aware if their patients are taking herbal preparations because of their potentially potent pharmacological

properties. Additionally they need to be aware of the potential toxicity of the various herbs in order to better care for and educate their patients.

Youngkin and Israel (1996) reviewed and critiqued common herbal remedies with the recommendation that clinicians be cautious in supporting the use of herbal substances. Further, they recommend that clinicians caution their patients not to use herbs if pregnant or nursing babies; not to give herbs to children; not to take large doses or use them everyday; and to use only standardized preparations. Additionally, they recommend that clinicians should carefully investigate in the scientific literature any herb that the patient is taking.

Zagorsky (1993) stated that it is not uncommon for care providers to see families who want to use herbal remedies. She made several recommendations pertaining to appropriate nursing care and interventions for such families. First, she encourages the nurse or care provider to routinely ask about the use of herbs and to find out if the herbs are bought from a reputable store or are hand picked. If the herbs are hand picked, she advises teaching patients that they may be contaminated with toxins or pesticides, or may even be the wrong herb. Herbs bought in stores should be in the form of capsules and extracts (rather than raw or as teas) and need to be verified as standardized. Doses, especially pediatric doses, should be specified on each container. Parents who treat their children with herbs should receive guidance from a health care practitioner who uses herbs for treating children. Additionally, patients should know that not all herbal preparations are totally safe, and that they should be treated with the same caution as allopathic medicines. Finally, Zagorsky (1993) concludes, nurses and allopathic providers must not impose their own opinions on a patient. Rather, they must work with patients and their

families to incorporate a holistic and safe approach to health care which may include the use of herbal remedies.

In their review of alternative therapies, Engebretsen and Wardell (1993), also make the recommendation to clinicians that they weigh carefully the potential harm versus the potential benefit of using alternative therapies. In the case of the clinician who is unfamiliar with alternative or herbal therapy, it is recommended that the client be referred to a practitioner knowledgeable in herbal therapies.

Extent of Herbal Medicine Use by the Public

Few studies provide information as to the extent of usage of herbal medicine by the public. Eisenberg et al.(1993) found that alternative medicine (of which herbal remedies is only one example) has a tremendous presence in the U.S. health care system. The study utilized a nation wide, randomized telephone survey of the public to determine the extent of use of alternative therapies in the United States. The researchers focused on the following issues: the extent of use, the medical conditions people most commonly used alternative therapy for, and the extent medical doctors were responsible for or informed about the use of alternative therapy by their patients.

Respondents were asked which alternative therapies, from a list of eighteen (of which herbal remedies was a choice) they had utilized in the last year. From this list, 33 % of respondents indicated they had used alternative therapies in the last year. Prevalence of herbal therapy by respondents was 3%. However, the term herbal was not defined and it is unclear as to how individual interpretations and definitions of the word were taken into account.

Results of the survey concluded that one in three persons in the U.S. adult population used alternative therapy in 1990. Additionally, it was found from the study that 66% of this group used the alternative therapies for serious medical conditions (back problems, anxiety, depression and headaches were reported most frequently). Hence, the researchers conjectured that 1/3 of the respondents using alternative therapy did so for non-serious conditions such as for health promotion or prevention. However, the use of alternative therapies as health promotion or disease prevention was admittedly not a part or focus of the research questions or study (Eisenberg et al., 1993).

The study also concluded the vast majority, 83%, sought treatment from a medical doctor, for the same condition that they used alternative therapies. However, 89% of respondents who saw a provider of alternative therapies did so without the recommendation of their physician and 72% did not inform their physician of their use of alternative therapies. The issue of whether physicians routinely asked about alternative healthcare practices was not addressed. Reliability and validity of the study were not addressed. The authors concluded by reiterating that one third of all Americans in 1990 used alternative therapy and that virtually every physician sees patients who are routinely using unconventional medicine (Eisenberg, et. al., 1993).

In another study of the use of botanicals for health purposes, Brown and Marcy (1991) interviewed 100 adults enrolled in a prepaid medical health plan for their use of botanical remedies. A convenience sample was obtained by approaching members 20 years or older in clinic waiting rooms in Portland, Oregon.

The three part interview schedule consisted of a list of 50 plant substances in Part I. Respondents were asked to indicate which of the 50 substances they, or members of

their families, had used for health purposes; whether the substance was used externally or internally; whether it was self-prepared or purchased; for what condition it was used; and how effective it was. Part II of the interview listed 60 health problems for which botanicals are used. Respondents were asked what home remedies they used for these problems. Part III of the interview schedule was designed to gather data regarding demographic information, the source of alternative therapies, and the source of botanicals.

Results found that all but 8 respondents reported they or their families used some botanical remedy. However, the study concluded that individuals varied considerably in their use of such remedies. They reported using from 0 to 23 of the 50 listed botanicals with a mean of 5. Nearly sixty percent of the 52 participants who experienced chronic health problems resorted to home remedies. Fifty-one percent of respondents reported using the services of an alternative healer at least occasionally. Further it was reported that users of botanical remedies were from higher socioeconomic levels, married, and patronized health food stores. Additionally, the study reported that most of the respondents obtained botanical remedies from stores, used them periodically for health promotion and prevention of disease, but most often for curative purposes. The researcher reported that most respondents felt that botanical remedies provided relief, however, no statistical findings were offered.

Limitations to the Brown and Marcy (1991) study include the fact that it was a convenience sample of a select population (pre-paid medical health plan). The authors also report that Portland probably had a disproportionate representation of people who utilize alternative modalities in that there is a local chiropractic college, naturopathic college, an acupuncture school and two massage therapy schools.

Reasons People Use Herbal Medicine

McGregor (1996) investigated people's reasons for using herbal remedies in conjunction with modern medicine. Using a convenience sample of people living in several Western states, she gathered 50 respondents to answer a survey questionnaire. Respondents were asked to answer a series of questions designed to describe the reasons people use herbal remedies and if they shared that information with their physician.

Results of the survey indicate that a majority of the respondents, 70%, saw themselves as healthy, felt in control of their medical care (86%) and desired a natural approach to the treatment of disease (86%). Further more, when respondents were asked if they felt their primary doctor saw them as a whole person, 60% reported yes, while 22% were undecided and 18% thought they did not. Additionally, 72% of respondents felt herbal remedies were as effective as manufactured medicines and 50% stated they did not trust modern-manufactured medicines. Only 44% reported telling their doctors about their use of herbal medicine. Similarly, respondents were asked to identify what their use of herbal medicine was based upon. Some respondents choose more than one answer. Results indicated that self-acquired knowledge (94%) and family tradition (42%) had a greater influence than culture (24%) or religion (18%) on their use of herbal medicine.

Five respondents also engaged in in-depth interviews. All 5 were asked the same questions, and analysis for common themes was reported. When asked reasons for using herbal medicines, analysis indicated that respondents believed herbs worked better and had fewer side effects than modern or allopathic drugs. Additionally, they reported a need for

self-direction in medical care and personal health, as well as a mistrust for manufactured medications.

When asked about the source for their belief in the effectiveness of herbal medicines, the interview information supported the information obtained from the earlier survey of the 50 respondents. Family tradition and self-study from books and magazines predominated as sources of their knowledge concerning the use of herbal medicine.

When asked if they told their doctors about their use of herbal medicines, there emerged a hesitancy by the respondents to disclose this information to their physicians. Two respondents reported “no,” while 3 gave a conditional “yes,” stating it would depend upon the doctor’s responsiveness to the information. Reasons informants gave for not telling their doctor about using herbal remedies included doctors disapproval, indifference or lack of caring by the doctor, a failure to understand, or an unwillingness to learn.

Limitations of the study, identified by the author, included the utilization of a small sample size for the survey ($n = 50$) and employment of a convenience sampling method. Additionally, the possibility exists that the respondents, in the personal interviews, answered in a manner which they found favorable to the researcher. The author ultimately concluded that the study, with its limitations, was not generalizable.

Nurse Practitioners

Nurse Practitioners as Primary Health Providers

Nurse practitioners (NPs) are nurses with education beyond the basic level of the registered nurse, which enables them to take on an expanded scope of practice. Nurse practitioners are trained to assess, diagnose, and treat illness (including prescription and

drug therapies), which affects patients through the course of their lifetime. Nurse practitioner roles overlap with those of medicine, as practitioners often practice in place of physicians as the primary care provider (Buppert, 1995). This overlap with medicine is reflected in the specialty areas of nurse practitioners: family nurse practitioner, adult nurse practitioner, geriatric nurse practitioner, nurse midwives, pediatric nurse practitioner, nurse anesthetists, and psychiatric nurse practitioner (Bullough, 1995; Hupcey, 1993).

The development of the nurse practitioner role began in the mid-1960's subsequent to a shortage of primary care physicians (Bullough, 1995). According to the American Nurses Association, there are currently between 25,000 to 30,000 nurse practitioners in the United States (Stafford & Appleyard, 1994). With the increasing costs of health care and recognition that nurse practitioners provide high quality care, for less than the cost of physicians, the number of nurse practitioners in practice is likely to continue to increase (Buppert, 1995). Indeed, in 1995 the American Association of Colleges of Nursing recommended that 70% of current nursing labor pool be educated as nurse midwives and NPs to meet the projected need (Busen & Engleman, 1996).

Use of Herbal Medicine by Nurse Practitioners

There is little known regarding the specific use of herbal remedies in the patient care practices of nurse practitioners (NP). It becomes necessary to look at other related studies to gain a possible understanding of this phenomenon. In their 1988 study, Goldstein, Sutherland, Jaffe and Wilson looked at the similarities and differences between members of the American Holistic Medical Association and family physicians. The researchers employed a convenience sampling method by soliciting members from the

American Holistic Medical Association and family physicians listed in California phone books. Respondents answered a research questionnaire used to gather information concerning three areas: demographics, practice characteristics and utilization of holistic or alternative medical techniques.

Results indicated that the two groups did not differ significantly in demographic characteristics. Likewise, practice characteristics (education, board certification, residency, type of practice) did not differ greatly between the two groups.

In order to address the third area of the study, respondents were asked to evaluate 25 alternative healing techniques in terms of how much value they had for medical practice and whether or not the physicians used the technique in their practice. Results indicated that 47% of the holistic physicians and 9% of the family physicians had utilized and felt herbal medicine had some or much value for practice. The term "herbal medicine," however was not defined and was therefore left to the respondent's interpretation as to how this term was applied.

In the 1994 descriptive study of McCraw, the researcher sought to gain an understanding of the use of alternative therapies by nurse practitioners. A nationwide random sample of members of the American Academy of Nurse Practitioners was solicited. Respondents answered a questionnaire designed by the researcher. Information was gathered concerning the education, certification, and work setting of the respondents; the extent and reasons NPs utilize alternative therapies; information gained from patients concerning their use of alternative therapies; teaching patients concerning the use of alternative therapies; and how the NPs gained expertise in the use of alternative therapies.

Survey results indicated that the majority of the respondents were certified as adult nurse practitioners (38%) or family nurse practitioners (50%). The majority lived in the Northeast United States (31%) followed by the Southwest (21%), Pacific region (18%) and Midwest (18%). Additionally, the respondents were most likely to be female (95%), work in clinics or private practice (58%) and have master's degrees (69%).

Concerning the extent NPs utilize alternative therapies, results indicated that 18.5% "routinely" and 54% "sometimes" recommend alternative therapies to their patients. Regarding the specific use of herbal medicine, it was reported that 22% "sometimes" recommend herbal medicine to their patients. It should be noted that the questionnaire listed 22 different types of alternative therapies. The term herbal medicine was but one choice. Other choices such as "folk remedies" and "organic foods" were also listed. It does not appear that the researcher accounted for the overlap of these terms and is therefore assumed that some overlap did occur.

Other findings were that the majority of respondents did not teach their patients about the use of alternative therapies for home use. However, respondents were not given the term "herbal medicine" as a choice for this question. Consequently it remains unclear if respondents taught their patients about herbal medicine for home use.

Additionally, it was reported that most NPs did ask patients about their use of alternative therapies in health histories. Again, it should be noted that the term "herbal medicine" was not specifically addressed in this question. It was reported that 33% of the respondents affirmed their questioning of patient use, while 52% answered "sometimes".

Concerning how NPs gained experience in alternative therapies, a third of the NPs responded that they had no expertise. Of the options for how NPs gained expertise, the

majority (51%) stated reading, followed by personal experience (47%), seminars (39%) and through a NP program (23%). Again, specific expertise, in specific therapies, was not addressed.

McCraw (1994) concluded that NPs are utilizing alternative therapies as intervention strategies in providing patient care. Additionally, NPs, because of their holistic health care model, find themselves in a unique position to synthesize the strengths of both conventional and alternative medicine, thus reducing the chance of fragmented care (McCraw, 1994).

Summary

Herbal remedies have been used for thousands of years and are in fact the basis for many modern pharmacological preparations. Today, the use of herbal medicine is considered to be an alternative therapy, falling outside conventional, allopathic medical practices. This is due in part because herbal therapy is largely based upon folklore, tradition, intuition and experience rather than hard scientific investigation.

The use of herbal medicine by the lay public has increased over the last several decades as evidenced by the multi-billion dollar sales reported by the industry (Griggs, 1991). Research studies dealing specifically with herbal medicine use vary. One study suggested that 1/3 of Americans utilize alternative therapies (Eisenberg, et. al., 1993). However, only 3% were found to use herbal medicine regularly (Eisenberg, et. al., 1993). In contrast, another study reported that 92% of the participants utilized multiple herbal medicines routinely (Brown & Marcy, 1991). Regardless of the discrepancy in the rate of use, one issue remains clear, Americans are utilizing herbal medicines.

Reasons why people utilize herbal medicines are many. Many consider herbal medicine to be more holistic, more natural, and safer than manufactured pharmaceuticals. Other reasons include a desire for control over their own health care. The literature reveals that people who utilize herbal medicine do so for curative and preventive purposes (Eisenberg, et. al., 1993; Brown & Marcy, 1991) and that self-acquired knowledge and family tradition may play a large role for the basis of medicinal herbal use (McGregor, 1996). Additionally, it was found that most individuals who utilized herbal medicine also seek the services of a practitioner of conventional or allopathic medicine (Eisenberg, et. al., 1993; McGregor, 1996). However, a majority do not tell their health care provider that they utilize herbal remedies for fear of being misunderstood or disapproved (McGregor, 1996).

What concerns, if any, health care providers have about the use of herbal medicines has been examined. It was discovered that issues of concern are centered around the acquisition, preparation and potentially potent, if not toxic, nature of herbs. Recommendations have been made to healthcare providers to assess, teach, and caution patients about herbal preparations (Saxe, 1987; Youngkin & Israel, 1996). It was also recommended that medical providers work with patients to safely incorporate the patients' herbal practices into their overall care (Zagorsky, 1993).

It was stated that nurse practitioners are nurses with advanced training in medicine who are functioning in the role of primary health care provider to people of all ages. Given this fact, it is logical to assume that nurse practitioners are seeing patients who utilize herbal medicine. What is unclear is how nurse practitioners are meeting the demands of patients who utilize herbal medicines. A review of the literature revealed no

studies which specifically addressed this issue. Related studies were examined. With one such study revealing that 9% of a group of family physicians sometimes utilized herbal medicine in their practice. Likewise, another study concerning the use of alternative therapies by nurse practitioners, revealed 22% of them sometimes recommended herbal remedies to their patients (McCraw, 1994). However, herbal remedies were not defined and therefore it remains unclear how reliable this figure is. Additionally it was reported that most NPs asked patients about their use of alternative therapies in the health history assessment. However, there was no information if NPs asked specifically about herbal medicines.

It also remains unclear how NPs learn about herbal medicine. Considering that the practice of medicinal herbalism is largely unscientific, it is not unreasonable to inquire as to the source of knowledge of this practice. McCraw (1994) examined this issue as it pertained to alternative medicine but not specifically to herbal medicine. Little is known what role family traditions, lay reports, religious beliefs or intuitive feelings play as the sources of knowledge concerning herbal preparations.

It is also unclear what the attitudes of NPs are toward those who utilize herbal remedies. Further it is unclear what NPs do once they become aware of the use of herbal remedies by a patient. Nurse practitioners are trained to offer holistic, personalized assessments as well as to treat illness, teach patients about therapeutic effects and potential hazards of treatments, elicit information about the patient's perceptions of their health condition as well as to acknowledge patient's strengths and assist them in addressing their needs (Shuler & Davis, 1993). Yet, after reviewing the existing literature, questions remain: Do nurse practitioners know how to safely acquire herbal preparations?

Do they teach their patients how to safely acquire them? Do they incorporate herbal medications into treatment plans? Do they consider them as pharmacological substances and consider them when prescribing traditional medicine? Do they teach their patients about potential interactions or side effects? Do they believe, as many lay people do, that herbal substances are safe and without potential dangers? Do nurse practitioners recommend herbs to their patients?

Before seeking information concerning nurse practitioner responses to their patients who use herbal remedies, it is important to look at the conceptual framework which will guide this study. Dorothea Orem's Self-Care Deficit Theory provides a framework to view the nurse practitioner and the patient and serves as the framework for this study.

CHAPTER III

FRAME OF REFERENCE

Introduction

Dorothea Orem's Self-Care Deficit Theory of Nursing is a general theory of nursing developed through three related parts or theories, which together comprise a theory of nursing (Johnson, 1989). These three parts include: self-care, self-care deficit and nursing system. For purposes of continuity, all three parts will be defined. However, it is the theory of nursing system that is of most concern regarding this study.

Conceptual Framework

Theory of Self-Care

The theory of self-care provides and explains how individuals take care of themselves in relation to their physical and emotional well being. It includes concepts such as: self-care, self-care requisites, self-care agency, and therapeutic self-care demands.

Orem believed that individuals could take care of themselves. Self-care is described as the "actions directed to self or the environment in order to regulate one's functioning in the interests of one's life, integrated functioning, and well-being" (Orem, 1985, p.31). Self-care can also be directed at dependent family members such as children or the elderly.

Self-care requisites are the reasons individuals engage in self-care activities. Self-care requisites are divided into three categories: universal, developmental and health deviation. Universal self-care requisites are common to all people and include the basic needs for food, water, rest, social interaction, safety and elimination (Orem, 1985). Developmental self-care requisites are concerned with issues of human developmental processes. These processes can be derived from a condition, such as pregnancy, or from an event, such as the death of a spouse. They can also stem from maturation, such as childhood, adolescence or adulthood (Orem, 1985). Health deviation self-care requisites are linked to illness or injury. These types of requisites are brought about by changes in the individual's functioning, physical structure, or interactions with others, which impair their usual functioning (Orem, 1985). For this study, self-care requisites can be conceptualized as the reasons that individuals use herbal remedies.

The provider of self-care is called an agent. The power and capacity of individuals to engage in self-care is termed self-care agency. Self-care agency is an acquired ability that is affected by the individual's education concerning human structure and function (Orem, 1985). A person who lacks health care knowledge will have less ability as a self-care agency (Orem, 1985).

A self-care agency can be influenced by interrelated basic conditioning factors. These factors include: age, gender, race, developmental state, socio-cultural factors, health, family system and environment. Basic conditioning factors can influence how a self-care agency determines and responds to therapeutic self-care demands (Orem, 1985).

Orem defines therapeutic self-care demand as: "A prescription for continuous self-care action through which identified self-care requisites can be met with stipulated degrees

of effectiveness” (Orem, 1985, p. 88). Similarly stated, therapeutic self-care demand is the action required to maintain life, health and well-being (Orem, 1985). Important to this concept is that individual self-care may be well intentioned, but not necessarily therapeutic. Therefore, according to Orem (1985), it becomes necessary for nurses to determine the therapeutic value of self-care practices prescribed by the general culture and by health professionals.

The use of herbal remedies as a self-care behavior leads to many questions concerning its’ therapeutic effectiveness and safety. Using Orem’s theory, it is important for nurse practitioners to evaluate the “therapeutic” self-care practices of their patients who utilize herbal remedies. This is especially important, concerning the issues of acquisition, safety and efficacy that have been revealed regarding the use of herbal remedies. Further, Orem’s theory calls for nurse practitioners to look at their own practices, including the use of medicinal herbs, for its therapeutic value.

Theory of Self-Care Deficits

The theory of self-care deficits explains why individuals seek nursing care. It includes a predictive component thus accounting for nursing requirements. Henceforth, the theory of self-care deficits is the core of Orem’s comprehensive theory of nursing (Johnson, 1989).

Orem (1985) defines self-care deficit as: “A relationship between self-care agency and therapeutic self-care demand in which self-care agency is not adequate to meet the known therapeutic self-care demand” (p.31). A self-care deficit explains how individuals can benefit from nursing. When individuals are incapable of self-care, a self-care deficit

results. Individuals can have a self-care deficit if their “therapeutic” self-care demand is not therapeutic or they lack the ability to act as their own agency. When individuals are incapable of acting as their own self-care agency, nursing may act to fulfill the therapeutic self-care demand.

In the case of this study, it is assumed that some patients of nurse practitioners use herbal remedies for preventive and curative purposes. However, since most information concerning the use of herbal remedies is based largely on folklore and lay literature, it is assumed that many individuals who engage in the use of herbal preparations have, at least, a potential for self-care deficit. This self-care deficit is linked to a knowledge deficit regarding the potential unsafe use and acquisition of herbal preparations. The role of the nurse practitioner is to assess for this lack of knowledge and educate the individual so that they may act as their own self-care agency. This education is conceptualized as a component of the nursing agency.

Theory of Nursing System

The theory of nursing systems describes and explains the conditions and relationships that must be present for nursing to come about. It also describes the attributes and conditioning factors which affect nursing. Three concepts are detailed: nursing agency, basic conditioning factors and nursing system.

Orem (1985) defines nursing agency as: “The complex capability for action that is activated by nurses in their determination of needs for, design of, and production of nursing for persons with a range of types of self-care deficits” (p.31). Specific characteristics that nurses must possess in order to act as a nursing agency include a

positive attitude and the willingness to help others (Orem, 1985). Additionally, nurses must possess capabilities that allow for the nursing process. Such capabilities are concerned with diagnosis, prescription, and regulation or development of the person's self-care agency, or meeting the therapeutic self-care demand (Orem, 1985).

Like self-care agency, nursing agency is a complex, acquired ability of adults to engage in deliberate action; the nursing of others. It is a specialized ability that varies in nurses through their life, educational and practice experiences (Orem, 1985).

Nurses are also influenced by basic conditioning factors. The basic conditioning factors which may influence the nurse agency are similar to those which may influence the self-care agency: age, gender, race, health, family, education, experience and maturity. Basic conditioning factors may influence the way a nurse assesses patient self-care deficits, or the way they prescribe a therapeutic self-care measure for the patient.

In this study, the nursing agency is identified as the nurse practitioner. It has been stated that little is known about the attitudes and knowledge of nurse practitioners concerning the use of herbal remedies. Utilizing the concept of basic conditioning factors, it is logical to surmise that factors such as education, experience, family and socio-cultural experience may play a role in how NPs assess, prescribe and respond to their patients who utilize herbal remedies.

Orem (1985) defines nursing system as: "A continuing series of action that is activated by nurses in their determination of needs for, design of, and production of nursing for persons with a range of types of self-care deficits" (p. 31). There are three types of nursing systems for organizing nursing services: wholly compensatory, partly compensatory, and supportive-educative. The type of nursing system, which will be used

in a given nursing situation depends on the ability of the patient (or the patient's representative) to act as their self-care agent and to meet their therapeutic self-care demands (Orem, 1985).

If the patient is unable to perform self-care actions it is considered wholly compensatory. In this situation, the service of nursing is compensating wholly for the patient who is unable to engage in self-care activity. An example of this is the nurse who takes care of a comatose patient.

If the patient can perform some but not all self-care actions, then the nursing service is considered to be partly compensatory. An example of this is the patient who requires help in ambulation from the nurse. The nurse and the patient are sharing the performance of self-care measures. In the case of the nurse practitioner's patient, the prescription for treatment, whether physical therapy, medication, diet or exercise, can be considered partially compensatory. In this situation the nurse practitioner is prescribing partially compensatory measures which augment the patient's self-care abilities. More specific to this study, nurse practitioners who recommend or prescribe herbal remedies to their patients can be seen as engaging in a partially compensatory nursing system.

If the patient can and should perform all self-care measures then the nursing service is considered to be supportive-educative. In this situation, the nurse performs a facilitative role rather than directly doing an action for or with the patient. An example of this is the patient who engages in the use of herbal remedies but lacks the appropriate knowledge to utilize them safely. The nurse practitioner may function to provide education and support for the patient to assist in safe and effective self-care.

A conceptual map of Orem's Self-Care Deficit Theory of Nursing is presented in Figure 1. While the figure represents the entire theory, it is the actions of the nursing agency that is the focus of this study. Specifically, it is the actions and influencing factors of the nurse practitioner, in response to their patients who utilize herbal remedies, that are the concern of this study.

Conceptual Map

Basic

Conditioning

Factors:

- Age
- Gender, Race
- Developmental
- Socio-cultural
- Health
- Family System
- Education

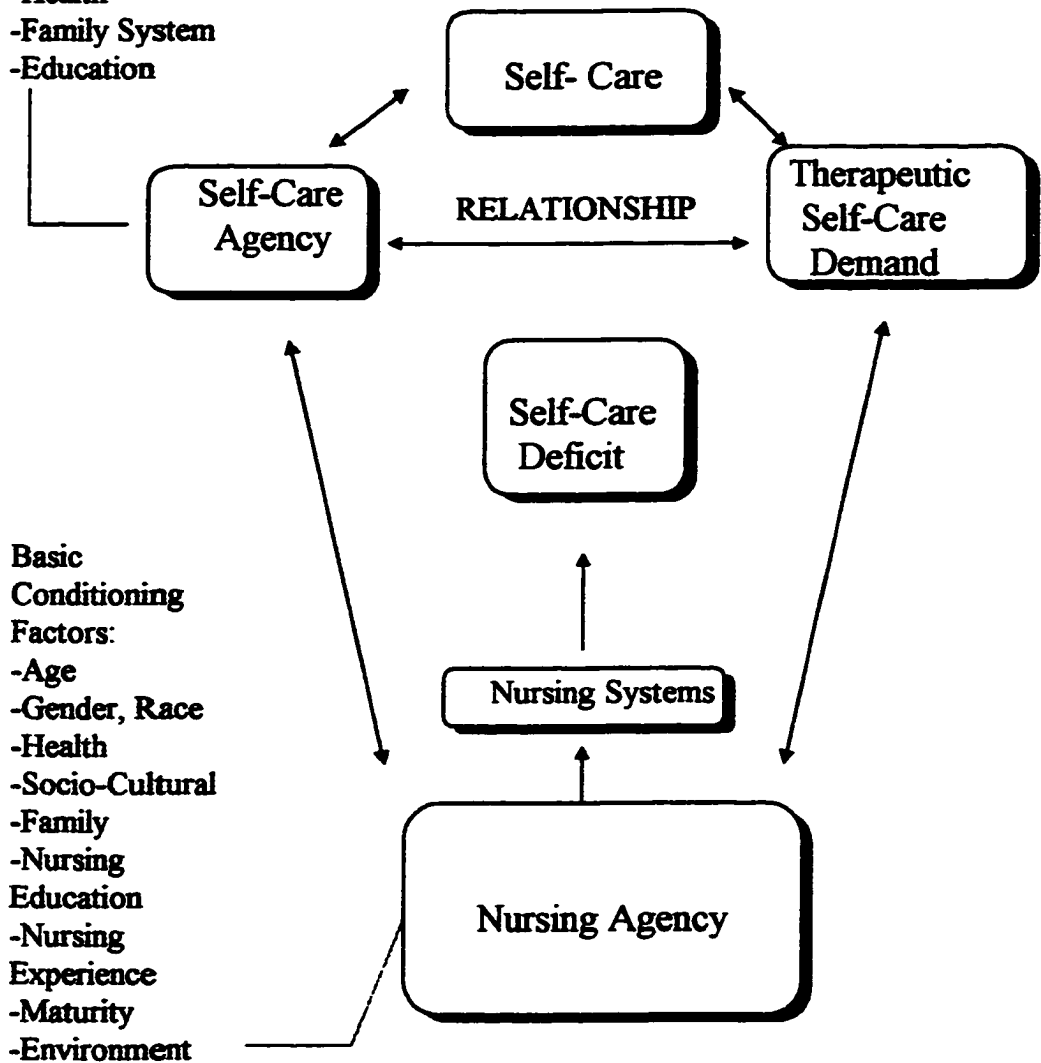


Figure 1. Conceptual Map of Orem's Self-Care Deficit Theory of Nursing. Adapted from Orem's model (Orem, 1985).

Definitions of Concepts

The following concepts are used in this study; their corresponding definitions are as follows:

Nurse practitioner: “Nurse practitioners are nurses in advanced practice with education beyond the basic level of the registered nurse, which enables them to take on an expanded scope of function in the diagnosis and treatment of patients” (Bullough, 1995, p.240).

Herbal medicine: A plant that possesses or is reputed to possess curative and remedial healing properties which are aimed at preventing illness, maintaining or restoring the health or natural balance of the user (Lipp, 1996). For the purpose of this study, herbal medicine are plants patients use and/or nurse practitioners prescribe for the purpose of preventing illness, maintaining or restoring health.

Herbal remedy: For the purpose of this study, herbal remedies are plants prepared in various forms (teas, juice, powder, capsules, oils, tinctures, raw, cooked, partial or whole plants) that are used by nurse practitioners or patients as herbal medicine.

Basic Conditioning Factors: In this study, basic conditioning factors are elements which may influence the nurse practitioner: gender, age, state of residence, practice setting, NP education, national certification, years of NP practice, specialization, location of practice, ethnic origin and religious orientation.

Attribute Variables

For this study, attribute variables are conceptualized to be the same as basic conditioning factors.

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Assumptions

The following assumptions apply to this study:

- 1. Nurse practitioners are seeing some patients (in the case of a child, the patient's representative, the parent) who engage in the self-care activity of using herbal remedies.**
- 2. For patients who utilize herbal remedies there exists a potential for a self-care deficit related to the safe use and acquisition of herbal remedies.**
- 3. Nurse practitioners have the potential to assess and respond to the actual or potential self-care deficits of their patients in a variety of ways. These responses may include asking about, teaching, and recommending herbal remedies.**
- 4. Nurse practitioners, like patients, may be influenced by basic conditioning factors regarding their knowledge and use of herbal remedies. These basic conditioning factors may include their education, experience, family background, culture and environment.**
- 5. The nurse practitioners who participate in this study will respond honestly.**

Research Questions

- 1. Are nurse practitioners evaluating the self-care practices of their patients who utilize herbal remedies?**
- 2. Are nurse practitioners recommending herbal remedies to meet the therapeutic self-care demands of their patients?**
- 3. Do nurse practitioners educate patients about acquisition and utilization of herbal remedies, so they may act as their own self-care agency ?**

4. Do nurse practitioners, as nursing agencies, have knowledge about the safe acquisition of herbal remedies?
5. Do nurse practitioners, as nursing agencies, have knowledge about the safe use of herbal remedies?
6. How do nurse practitioners as nursing agencies acquire knowledge of herbal remedies?
7. What basic conditioning factors of nurse practitioners are associated with the frequency of recommending herbal remedies to patients?

Summary

This chapter has reviewed Dorothea Orem's Self-care Deficit Theory of Nursing as the framework for this study. To provide continuity, the theory's three parts were presented: self-care, self-care deficit and nursing system. For the purposes of this study, it was stated that the theory of nursing system is of most importance. Utilizing the current study, Orem's theory was partially illustrated through relevant conceptualizations and illustrations. Further, concepts and attribute variables of the current study were defined. Finally, a synthesis of the knowledge gaps presented in the previous chapter, and Orem's theory as the frame of reference for this study, have been presented in the form of research questions.

CHAPTER IV

METHODS AND PROCEDURES

Introduction

In this chapter, the methods and procedures of the study are described. The design, the sample, the setting, and the procedure for data collection are outlined. Validity testing for the survey instrument is described. Additionally, demographic information and research questions will be restated, along with description of survey questions which pertain to them. The chapter concludes with the planned data analysis.

Research Design

The research design was descriptive and exploratory, utilizing a survey which ask nurse practitioners about their practice behaviors as they pertain to their patients who utilize herbal remedies. The questionnaire, designed for this study, was based upon the literature review, conceptual framework and research questions.

Sample

The target population for this study was nurse practitioners. Information about this population of nurses was preliminarily derived from a national survey of certified nurse practitioners (Washington Consulting Group, 1994).

The sample for this study was obtained from the American Academy of Nurse Practitioners (AANP). The AANP is a national, non-profit professional organization for Nurse Practitioners. All Nurse Practitioner specialties are represented within the organizational membership (American Academy of Nurse Practitioners, 1997).

Respondents were free to fill out the survey if they wanted, and at the location of their choice. The survey questionnaire was mailed to randomly selected members.

Measurement Methods

The measurement tool was a four-part questionnaire. Part I was the demographic portion. Part II was a checklist of herbs that the NP might have recommended to their patients in the last 12 months. Part III was a ranking of the frequency of behaviors of NPs in relation to their patients who utilize herbal remedies. Part IV contained two questions; one question pertained to the NP's self-evaluation of their knowledge of herbal remedies and the other asked how the NP had gained such knowledge. A sample of the questionnaire is contained in Appendix A.

Level of Measurement

There are two items in Part I, demographic data, that had ordinal levels of measurement. These two items were: age and number of years of nurse practitioner experience. The remainder of Part I used nominal levels of measurement. Part II, the checklist of herbs, was also nominal data. Part III, the frequency of behaviors, was ordinal level data that appeared interval looking. In Part IV, question one was measured on the ordinal level and also appeared interval looking. Question two, in Part IV, was a nominal level of measurement.

Validity

Validity of an instrument is concerned with the extent to which it actually reflects the concept or construct being measured (Holm & Llewellyn, 1986). Holm and Llewellyn (1986) suggest that content validity should be established when an instrument is being developed. This is done by reviewing the relevant literature to delineate the variables; constructing items that are representative of the variables to be measured; and finding individuals who are familiar with the content area to judge the appropriateness of the items (Holm & Llewellyn, 1986). These steps were followed for this study.

The questionnaire was formulated based upon the research questions and a review of the literature. For instance, Part II, a list of herbs, was derived from a compilation of herbs contained in the Brown & Marcy (1991) study and from the work of Youngkin & Israel (1996). In order to ensure content validity of the list of herbs the questionnaire was given to an owner of a local health food store which sold medicinal herbs to the general public. It was thought that the owner would be most familiar with the type of herbs most commonly used by the public. The owner was asked to examine Part II of the questionnaire for its relevance and accuracy. Based upon the owner's written comments, revisions to Part II were made.

Next, the questionnaire, in its entirety was distributed to 12 graduate nursing students participating in a graduate level research class. The members were asked to give feedback concerning appropriateness, accuracy, and comprehension of the questionnaire. After feedback, revisions were made to the questionnaire.

Before distribution to the study sample, the questionnaire was piloted with a convenience sample of 10 nurse practitioners practicing in the Las Vegas, Nevada area.

The questionnaire was distributed with instructions from the researcher explaining the purpose of the study, the questionnaire, and the purpose of the pilot study. Respondents were asked to fill out the questionnaire and provide written comments concerning its content, relevance and accuracy as they related to the purpose of the study. Final revisions to the questionnaire were made based upon the written comments of the pilot respondents.

Procedure

The American Academy of Nurse Practitioners provided a randomized list, based upon their membership, for this study. The questionnaire, a cover letter explaining the purpose of the study, and a pre-addressed, stamped for return envelope were mailed to the 600 NPs from the AANP's list. The respondents were asked to complete and return the questionnaire by a specified date. Approximately two weeks after the initial mailing, a reminder letter was mailed to increase the response rate.

Ethical Considerations

Review and approval of this research was first obtained by the members of the thesis committee. Subsequently, human subject rights were assured by following the Department of Nursing and UNLV protocols for human subjects. Due to the voluntary nature of the study with only adult participants, exempt status for the study was awarded by the University of Nevada, Las Vegas Human Subjects Rights Committee (Appendix C). Each questionnaire was accompanied by a cover letter of explanation describing the purpose of the study, as well as a statement that the return of the questionnaire was

considered as consent to participate (Appendix D). Consent to participate was voluntary and was implied by return of the questionnaire by the participant.

No personal identification was asked for in the questionnaire. For these reasons, participant anonymity was maintained.

Data Analysis

Prior to data entry, every returned survey was numbered. The data were then entered into the computer using the case number corresponding to the number assigned each survey. Once data entry was complete, every fifth case was compared, datum for datum, to the original survey form. This procedure was done in an effort to ensure a clean, accurate data analysis. Further, a frequency was ran on each variable. Subsequently, a search for variables outside the appropriate frequency range for each individual variable was undertaken. Miscoded variables were identified and the correct data were entered.

Demographic Data

Part I of the questionnaire was concerned with the demographic characteristics of the sample population. The following were the categories of demographic data queried for this survey: gender, age, national certification, practice setting, practice location, NP education, years of NP practice, specialization, type of prescriptive authority, religion, and race. Frequencies and percentages were analyzed for each category.

Research Question # 1.

To answer the question, “Are nurse practitioners evaluating the self-care practices of their patients who utilize herbal remedies?” respondents were asked to indicate how

frequently they ask their patients about herbal remedies in their health history.

Additionally, respondents were asked to indicate the frequency of asking their patients who use herbal remedies, where they gain information about herbal remedies and where they acquire herbal preparations. Frequencies were reported as 0= never, 1= sometimes, 2= frequently, 3= always. Frequencies for each response, as well as percentages, were computed.

Research Question # 2.

To answer the question, “Are nurse practitioners recommending herbal remedies to meet the therapeutic self-care demands of their patients?” respondents were asked to answer Part II of the questionnaire, a checklist of herbal remedies indicating those they had prescribed in the last 12 months. Analysis of this data included the total number of respondents who checked at least one herb, a frequency distribution, and the mean and median amount of herbs recommended.

Additionally, respondents were asked to indicate the frequency that they recommended herbal remedies and if they believed the use of herbal remedies was an important part of their patients’ self-care. Frequencies were reported as 0= never, 1= sometimes, 2= frequently, 3= always. Frequencies for each response, as well as percentages, were computed.

Research Question # 3.

To answer the question, “Do nurse practitioners educate patients about acquisition and utilization of herbal remedies, so they may act as their own self-care agency?” the respondents were asked to rate how frequently they teach patients where to acquire herbal

remedies and how to use herbal remedies. Frequencies were reported as 0= never, 1= sometimes, 2= frequently, 3= always. Frequencies for each response, as well as percentages, were computed.

Research Question # 4.

To answer the question, “Do nurse practitioners, as nursing agencies, have knowledge about the safe acquisition of herbal remedies?” respondents were asked to rank the frequency they recommend to their patients growing or harvesting herbs for medicinal use and the frequency they recommend standardized, commercially prepared herbal preparations. Frequencies were reported as 0= never, 1= sometimes, 2= frequently, 3= always. Frequencies for each response, as well as percentages, were computed.

Research Question # 5.

To answer the question, “Do nurse practitioners, as nursing agencies, have knowledge about the safe use of herbal remedies?” respondents were asked to report the frequency they incorporate herbal remedies into treatment plans. Additionally, respondents were asked to report how frequently they consider: a patients’ use of herbal remedies when prescribing medications; the safety of herbs for pregnant women; the safety of herbs for children; and herbal remedies as safe as manufactured drugs. Frequencies were reported as 0= never, 1= sometimes, 2= frequently, 3= always. Frequencies for each response, as well as percentages, were computed.

Research Question # 6.

To answer the question, “How do nurse practitioners as nursing agencies acquire knowledge of herbal remedies?” respondents were asked to indicate, from a pre-designed list, the various ways that they have gained knowledge about herbal remedies. Respondents were asked to choose all that applied to them. The information was analyzed by frequency distribution, the mean and median number of ways NPs gain knowledge about herbs, and the percentage each method was indicated.

Additionally, nurse practitioners were asked to rate the degree of self-knowledge they currently have about herbal remedies. The degrees of self-knowledge were categorized as 1 = no knowledge, 2 = a little knowledge, 3 = moderate knowledge, 4 = a lot of knowledge and 5 = expert knowledge. The information was analyzed for frequencies and percentages for each degree of knowledge.

Research Question # 7.

To answer the question, “What basic conditioning factors of nurse practitioners are associated with the frequency of recommending herbal remedies to patients?” Kruskal-Wallis one-way analysis of variance and the Mann-Whitney U-test were used. Basic conditioning factors were: age, specialization, practice setting, religion, race, and how NPs acquired knowledge of herbal remedies.

CHAPTER V

RESULTS

Introduction

This chapter presents results of data analyses as they relate to the inclusion of herbal remedies in the patient care practices of family nurse practitioners. The study results are presented as follows: description of the sample, demographic characteristics of family nurse practitioner respondents, description of family nurse practitioner professional characteristics, analysis as it relates to research questions, and summary of results.

Description of the Sample

The questionnaire was mailed to 600 nurse practitioners nationwide. Of the 600 surveys mailed, 304 were returned. None were returned undeliverable. Of importance however, was the consideration of whether all the returned surveys were usable as part of the study sample.

Of the 304 returned surveys, 86.8 % (n=264) of the respondents identified themselves exclusively as family nurse practitioners (FNP). The next largest number of respondents (5.6%, n=17) identified being family nurse practitioners as well as members of another specialty group such as pediatric or school nurse practitioners. Two of these “multiple” category respondents stated they were FNPs as well as physician assistants. The remaining number of respondents identified themselves as adult nurse practitioners

(2.3 %, n=7), geriatric nurse practitioners (0.7%, n=2), women's health nurse practitioners (0.3%, n=7), pediatric nurse practitioners (0.3%, n=7) and "other" (0.7%, n=2). In addition, 3.3% (n=10) of the data were missing for this survey item.

To assess the representational characteristics of the survey's sample, a comparison to national statistics on nurse practitioner specializations was warranted. Information about nurse practitioners nationally was derived from the 1992 National Survey of Certified Nurse Practitioners and Clinical Nurse Specialists (Washington Consulting Group, 1994). This publication represented the most recent national data concerning nurse practitioners found in the review of the literature for this study. This 1992 survey was originally mailed to 4000 nationally certified or State recognized nurse practitioners and clinical nurse specialists. There was an effective response rate of 69 %, or 2,619 combined returns. Of the combined returns, 66.4 %, or 1,738, were nurse practitioners. Table 1 summarizes the differences between this study's NP sample and the national data as they relate to areas of specialization.

As a result of these comparisons, the specialty characteristics of the nurse practitioner population did not support using the study's full original sample, which contained a very small representation of subspecialties outside that of family nurse practitioners. Therefore it was decided to include only family nurse practitioner responses in the rest of the analyses.

Furthermore those subjects who responded as having "multiple" specialties (5.6%, n=17) were also excluded from the analysis. This decision was based on the rationale that this group represented a unique diversity of educational preparations, certifications and practice specialties incongruent to the FNP group. Consequently, only

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Table 1

Comparison of National Data for Nurse Practitioner Specialty to Survey's Respondents

Specialization	Survey		National Data ¹	
	(N=304)		(n=1,738)	
	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
Adult NP	7	2.3	349	20.0
Family NP	264	86.8	450	25.9
Women's Health	1	0.3	103	5.9
Pediatric NP	1	0.3	271	15.6
Geriatric NP	2	0.7	249	14.3
Other	2	0.7	564	32.5
Multiple	17	5.6	-	-
Missing	10	3.3	3	0.2

Note.¹ National data from Survey of Certified Nurse Practitioners and Clinical Nurse Specialists: December 1992, Final Report (Table 2-6), by Washington Consulting Group, 1994, Washington, D.C. Dashes indicate that data were not available.

those who identified themselves as FNPs without other, additional roles or preparation were analyzed in this study.

Therefore, as a result of the small number of non-FNP respondents it was determined that conclusions about any other groups was inappropriate. Hence, the usable sample for this study consisted of 264 family nurse practitioners, a response rate of 44%.

Demographic Characteristics of Family Nurse Practitioner Respondents.

Of the 264 FNP respondents, the majority were female (91.7%, n=242). Further, the vast majority of respondents identified as "Caucasian" (91.3%, n=241) and about half

reported they were between the ages of 36–45 (45.5%, n=120). Concerning the area of religion, the largest number of respondents reported “Protestant” (37.9%, n=100) as their religious affiliation followed by “Catholic” (29.2%, n=79). Furthermore, 10.6% (n=28) reported having “no religious preference.” Table 2 summarizes the demographic characteristics for the sample’s FNP respondents.

Description of Family Nurse Practitioner Professional Characteristics

The majority of family nurse practitioner respondents reported they were nationally certified (91.3%, n=241). Additionally, the respondents were well educated. The largest number of FNPs reported their NP education as exclusively a Master’s program (71.3%, n=184) followed by exclusively a certificate program (3.1%, n=8) followed by both a Master’s and a certificate program education (8.5%, n=22). Missing data for NP education were 2.3% (n=6). Further, most of the respondents practiced in urban locations (42%, n=111) while 31.1% (n=82) practiced in rural areas and 26.5% (n=70) practiced in small town settings. Missing data for practice location was 0.4% (n=1). The largest number of FNPs (28.4%, n=62) reported that they worked in a “private practice” setting followed by the categories “other” (23.4%, n=62), “free standing primary care” (18.4%, n=49), “outpatient clinic” (17.0% n=45) and “E.D. or urgent care” (4.9% n=13). The remaining 7.2 % reported almost equally between working in a “health department,” “HMO” or a “hospital” setting. One case was missing (0.4%).

Table 2

Demographic Characteristics of Family Nurse Practitioner Respondents

Variable	<u>n</u>	%	(N = 264)
Gender			
Female	242	91.7	
Male	22	8.3	
Age			
20-25	0	0.0	
26-36	48	18.2	
36-45	120	45.5	
46-55	77	29.2	
Missing	2	0.8	
Race			
African-American	4	1.5	
American Indian	2	0.8	
Asian	2	0.8	
Caucasian	241	91.3	
Hispanic	6	2.3	
Multiple	1	0.4	
Missing	2	0.8	
Religion			
Catholic	79	29.2	
Jewish	11	4.2	
Native American	2	0.8	
New Age	5	1.9	
No Religious Preference	28	10.6	
Protestant	100	37.9	
Other	32	12.1	
Missing	9	3.4	

Concerning the type of prescriptive authority that the family nurse practitioners maintained, a majority, 50.4%, reported that they had “collaborative authority” (n=133). Of the remaining respondents, 36% reported their prescriptive authority as “autonomous” (n=108), and 36 FNP’s (13.6%) failed to answer the question. This void of responses may account for those FNP’s who had no prescriptive authority and were not given this option as a response category on the survey. Another reason may have been that the actual

question location on the survey was poorly placed, and therefore, several respondents may have failed to answer the question because it was simply overlooked.

Respondents were also asked to indicate the number of years they had practiced as a nurse practitioner. A majority, 40.2%, of respondents stated they had been in practice 0-2 years (n=106), followed by 3-5 years (33.3%, n=88) and finally 5-10 years (15.2%, n=40). Only one respondent (0.4%) reported that he/she had been in practice 11 or greater years. There was one missing case (0.4%). However, results should be viewed with caution, as the two middle categories were not mutually exclusive; they both contained the number 5. Therefore, responses were recoded to reflect that 48.5% (n=128) had been in practice 3-10 years. Table 3 summarizes the professional characteristics of the sample's FNP respondents.

Research Question Results

Research Question # 1

To answer the question, "Are nurse practitioners evaluating the self-care practices of their patients who utilize herbal remedies?" respondents were asked to answer questions 2, 4 and 7 from Part III of the survey. These survey items were aimed at investigating the frequency with which nurse practitioners ask their patients about: a) the use of herbal remedies in their health history, b) where they gain information about herbal remedies, and c) where they acquire herbal preparations.

Overall, 12.5 % (n = 33) of FNPs "never" ask their patients about the use of herbal remedies when they take a health history. However, 30.7 % (n = 81) stated that

Table 3

Professional Characteristics of Family Nurse Practitioner Respondents

Variable	n	%	(N=264)
National Certification			
Yes	241	91.3	
No	20	7.6	
Missing	3	1.1	
NP Education			
Certificate Program	30	11.4	
Master's Program	206	78.0	
Both	22	8.3	
Missing	6	2.3	
Practice Location			
Urban	111	42.0	
Small Town	70	26.5	
Rural	82	31.3	
Missing	1	0.4	
Practice Setting			
E.D. or Urgent Care	13	4.9	
Free Standing Primary	49	18.6	
Health Department	8	3.0	
HMO	4	1.5	
Hospital (acute care)	7	2.7	
Outpatient Clinic	45	17.0	
Private Practice	75	28.4	
Other	62	23.4	
Missing	1	0.4	
Prescriptive Authority			
Autonomous	95	36.0	
Collaborative	133	50.4	
Missing	36	13.6	
Years of NP Practice			
0-2	106	40.2	
3-5	88	33.3	
5-10	40	15.2	
11 or greater	1	0.4	
Missing	1	0.4	

they “sometimes” ask, 33.3 % (n = 88) “frequently” ask, and 23.5 % (n = 62) “always” ask about herbal remedies. Combining the categories “sometimes,” “frequently,” and “always,” 87.5 % (n = 231) of the FNP respondents answered positively, indicating at a minimum, they sometimes ask about herbal remedies in their patients’ health histories.

Responding to whether or not FNPs query their patients about where they gained information about the herbal remedies they use 17.8 % (n= 47) of the respondents stated they “never” ask their patients. Another 38.6 % (n= 102) stated they “sometimes” ask, 31.1% (n= 82) stated they “frequently” ask, and only 12.5 % (n= 33) “always” ask their patients where they gain information concerning herbal remedies. Once again, combining the categories “sometimes,” “frequently,” and “always,” 82.2 % (n= 217) of the respondents answered positively to the question about asking patients where they get information about herbal remedies.

As to whether or not FNPs ask patients where they acquire herbal remedies 17.8 % (n= 47) responded “never.” In contrast, 12.9 % (n = 34) indicated they “always” ask, 30.7 % (n= 81) “frequently” ask, while the majority, 38.6 % (n = 102) stated they “sometimes” ask. Combining the three categories “sometimes,” “frequently,” and “always,” 82.2% (n = 217) of the 264 FNP respondents answered affirmatively; that they at least sometimes query their patients about where they acquire herbal remedies.

In summary, to answer the research question “Are nurse practitioners evaluating the self-care practices of their patients who utilize herbal remedies?” a majority of the FNPs answered positively to the survey items. At least 80% of the respondents answered that they at a minimum “sometimes” perform the behaviors related to obtaining

information about clients use of herbal therapy. Table 4 provides a summary of responses to the research question.

Table 4

Are Nurse Practitioners Evaluating the Self-Care Practices of Their Patients Who Utilize Herbal Remedies? (N=264)

I ask my patients about herbal remedies in their health history.

<u>Response</u>	<u>n</u>	<u>%</u>	<u>Cum %</u>
Never	33	12.5	12.5
Sometimes	81	30.7	43.2
Frequently	88	33.3	76.5
Always	62	23.5	100.0
Positive Responses	231	87.5	

I ask my patients where they gain information about herbal remedies.

<u>Response</u>	<u>n</u>	<u>%</u>	<u>Cum %</u>
Never	47	17.8	17.8
Sometimes	102	38.6	56.4
Frequently	82	31.1	87.5
Always	33	12.5	100.0
Positive Responses	217	82.2	

I ask my patients where they acquire herbal remedies.

<u>Response</u>	<u>n</u>	<u>%</u>	<u>Cum %</u>
Never	47	17.8	17.8
Sometimes	102	38.6	56.4
Frequently	81	30.7	87.1
Always	34	12.9	100.0
Positive Responses	217	82.2	

Note. Percentages are reported as valid %.

Research Question # 2.

To answer the question, “Are nurse practitioners recommending herbal remedies to meet the therapeutic self-care demands of their patients?” respondents were asked to complete Part II of the questionnaire, which instructed them to mark a checklist of 53 herbal remedies, which herbs they had recommended in the last 12 months. In addition

to these fixed responses, respondents were also given the option to select either “herbal combinations” (to indicate a remedy consisting of 2 or more prepackaged herbs), or “none of the above,” if they did not prescribe any of the 53 herbs.

From the checklist, 23.5 % (n = 62) of the FNP's indicated that they did not recommend any of the 53 herbs listed or any type of herbal combinations over the last 12 months. In contrast, 76.1 % (n = 201) indicated that they had recommended at least one of the 53 herbs in the last year. The mean number of herbs recommended from the list was 4.75. The range of herbs recommended by a FNP was from 1 to 30. The median number of herbs recommended from the list was 3. This number indicates that 50% of the FNP respondents recommended 3 or less herbs from the list in the last year and that 50% recommended more than 3. Additionally, 13.3 % (n= 35) indicated that they had recommended herbal combinations in the last year. The top three herbs recommended by the 201 FNP respondents who affirmed their use of herbal recommendations were: Aloe Vera, 44.5 % (n= 117), St. John's Wort, 42.% (n= 111), and Echinacea 36% (n= 95). Table 5 summarizes the 53 herbs surveyed, identifying the frequency and percentage of respondents who recommended them. The table is arranged in descending order of frequency.

Aside from the list of 53 herbs, respondents were also asked to answer questions 1 and 5 from Part III of the survey. Question 1 asked the frequency that the nurse practitioner recommended herbal remedies in the last 12 months. Question 5 asked the frequency that the nurse practitioner believed the use of herbal remedies to be an important part of their patients' self care.

Table 5

Herbs Recommended By Family Nurse Practitioners in the Last 12 Months

(N =264)

Herb	n	%	Herb	n	%
Aloe Vera	117	44.3	Alfalfa	10	3.8
St. John's Wort	111	42.0	Licorice	9	3.4
Echinacea	95	36.0	Anise	8	3.0
Garlic	89	33.7	Slippery Elm	8	3.0
Psyllium	65	24.6	Kava Kava	7	2.7
Chamomile	61	23.1	Milk Thistle	7	2.7
Ginko	57	21.6	Pygcnogenol	7	2.7
Ginseng	54	20.5	Dandelion	6	2.3
Cranberry	49	18.6	Olive	6	2.3
Ginger	47	17.8	Sage	6	2.3
Evening Primrose	47	17.8	Sassafras	6	2.3
Peppermint	45	17.0	Celery	5	1.9
Witch Hazel	43	16.3	Kelp	5	1.9
Valerian	35	13.3	Comfrey	4	1.5
Saw Palmentto	24	9.1	Fennel	4	1.5
Eucalyptus	23	8.7	Clove	3	1.1
Goldenseal	21	8.0	Ephedra	3	1.1
Donquai	17	6.4	Juniper	3	1.1
Rose Hips	16	6.1	Lemon Grass	2	0.8
Cayenne	15	5.7	Skullcap	2	0.8
Flax Seed	15	5.7	White Willow	2	0.8
Feverfew	14	5.3	Apricot	1	0.4
Senna	13	4.9	Cherry	1	0.4
Papaya	12	4.5	Shepherds Purse	1	0.4
Raspberry	12	4.5	Turmeric	1	0.4
Grapefruit Fiber	10	3.8	Kudza	0	0.0
Parsley	10	3.8			

Regarding the frequency of recommending herbal remedies, 26.1 % (n= 69) responded that they had “never” recommended herbs to their patients in the previous 12 months. However, the majority, 56.4% (n= 149) responded that they had “sometimes” done so, while 16.3% (n=43) responded “frequently.” Only 3 individuals or 1.1% responded that they had “always” recommended herbal remedies to their patients in the previous 12 months. Thus, in sum, 73.9% (n=195) of the 264 FNP’s surveyed indicated that they had at least “sometimes” recommended herbal remedies to their patients in the last 12 months.

Concerning whether or not respondents believed the use of herbal remedies to be an important part of their patients’ self-care, 10.6 % (n=28) responded “never,” while a majority, responded “sometimes” 57% (n=150) or “frequently” 22.4% (n=59). The remaining 9.9% (n=26) of respondents marked that they “always” believed herbal remedies were an important part of their patients’ self-care. As a result, by combining the categories “sometimes,” “frequently,” and “always,” 89.4% (n=235) of the FNP respondents believe herbal remedies are, at least sometimes, an important part of their patients’ self-care practices. Missing from the data was one case, or 0.4%, and therefore all percentages reported are valid percents.

In conclusion, to answer the question “Are nurse practitioners recommending herbal remedies to meet the therapeutic self-care demands of their patients?” the majority of respondents answered affirmatively. Most respondents stated that they, at minimum, “sometimes” recommend herbs and “sometimes” believe herbal remedies to be an important part of their patients’ self-care. Table 6 summarizes the last two responses related to the research question.

Table 6

Are Nurse Practitioners Recommending Herbal Remedies to Meet the Therapeutic Self-Care Demands of Their Patients ? (N=264)

In the last 12 months, I have recommended herbal remedies to my patients.

<u>Response</u>	<u>n</u>	<u>%</u>	<u>Cum %</u>
Never	69	26.1	26.1
Sometimes	149	56.4	82.6
Frequently	43	16.3	98.9
Always	3	1.1	100.0
Positive Responses	195	73.9	

I believe the use of herbal remedies is an important part of my patient's self-care.

<u>Response</u>	<u>n</u>	<u>%</u>	<u>Cum %</u>
Never	28	10.6	10.6
Sometimes	150	56.8	67.7
Frequently	59	22.3	90.1
Always	26	9.8	100.0
Missing	1	0.4	
Positive Responses	235	89.4	

Note: Percentages are reported as valid %.

Research Question # 3

To answer the question "Do nurse practitioners educate patients about acquisition and utilization of herbal remedies, so they may act as their own self-care agency?" respondents were asked to answer questions 6 and 7 in Part III of the survey. Questions 6 and 7 were aimed at investigating the frequency in which nurse practitioners teach patients where to acquire herbal remedies and how to use herbal remedies, respectively.

In regards to the frequency of teaching their patients where to acquire herbal remedies, 42.8% (n=113) of the FNP respondents marked that they "never" provide this information to their patients. For those FNPs who did provide information, 39.45% (n=104) responded "sometimes" and 14.8 % (n=39) responded " frequently." Only 3%

(n=8) stated that they “always” teach patients how to acquire herbal remedies. Therefore, combining the categories “sometimes,” “frequently,” and “always,” more than half (57.2%, n=151) of the FNP respondents affirmed that they at least “sometimes” teach their patients where to acquire herbal remedies.

In response to teaching patients how to use herbal remedies, the results show that 36.4% (n= 96) of FNPs responded “never” do so, while the majority, 45.8% (n=121), responded “sometimes” and 14.4% (n= 38) responded “frequently.” Only 3.4% (n= 9) responded that they “always” teach their patients how to use herbal remedies. Combining the categories “sometimes,” “frequently,” and “always,” 63.6% (n= 168) of the FNPs responded positively to teaching their patients how to use herbal remedies.

In summary, over half of the respondents answered the survey items positively indicating that most of the FNP respondents, at minimum, “sometimes” educate their patients about the use and acquisition of herbal remedies. Table 7 summarizes the results related to this research question.

Research Question # 4.

To answer the question, “Do nurse practitioners, as nursing agencies, have knowledge about the safe acquisition of herbal remedies?” subjects were asked to respond to questions 13 and 14 of Part III of the survey. Questions 13 and 14 were aimed at investigating the frequency with which nurse practitioners recommend to their patients standardized, commercially prepared herbal preparations and the frequency they recommend growing or harvesting herbs for medicinal use.

Table 7

Do Nurse Practitioners Educate Patients About the Acquisition and Utilization of Herbal Remedies, So They May Act as Their Own Self-Care Agency ? (N=264)

I teach my patients where to acquire herbal remedies.

<u>Response</u>	<u>n</u>	<u>%</u>	<u>Cum %</u>
Never	113	42.8	42.8
Sometimes	104	39.4	82.2
Frequently	39	14.8	97.0
Always	8	3.0	100.0
Positive Responses	151	57.2	

I teach my patients how to use herbal remedies.

<u>Response</u>	<u>n</u>	<u>%</u>	<u>Cum %</u>
Never	96	36.4	36.4
Sometimes	121	45.8	82.2
Frequently	38	14.4	96.6
Always	9	3.4	100.0
Positive Responses	168	63.6	

Note. Percentages are reported as valid %.

In regard to recommending standardized, commercially prepared herbal preparations, 31.1% (n=82) stated they “never” recommend these products to their patients, whereas 36.9% (n=97) stated “sometimes,” 19.4 % (n=51) stated “frequently,” and 12.5% (n=33) stated “always.” Therefore, combining the categories “sometimes,” “frequently,” and “always,” 68.8% (n=181) of the FNP’s recommended on some occasion standardized, commercially prepared herbal preparations. Missing from the data was one case, or 0.4%, therefore percentages reported are valid percents.

Regarding growing or harvesting herbs, a large percentage, 82.2% (n=217) of the 264 FNP respondents, stated they “never” recommended this practice to their patients, while 14.4% (n=38) stated “sometimes.” Lower percentages were demonstrated at the “frequently” (1.9%, n=5) and “always” (1.5%, n=4) categories.

In conclusion, to answer the research question “Do nurse practitioners, as nursing agencies, have knowledge about the safe acquisition of herbal remedies?” most of the respondents’ answers affirmed that they have at least some knowledge of safe acquisition. Most of the FNP respondents stated that they at least “sometimes” recommend standardized, commercially prepared herbal remedies. Furthermore, most respondents did not recommend growing or harvesting herbs for medicinal purposes. Table 8 summarizes the responses as they relate to the research question.

Table 8

Do Nurse Practitioners, as Nursing Agencies, Have Knowledge About the Safe Acquisition of Herbal Remedies? (N=264)

I recommend standardized, commercially prepared herbal preparations.

<u>Response</u>	<u>n</u>	<u>%</u>	<u>Cum %</u>
Never	82	31.2	31.2
Sometimes	97	36.9	68.1
Frequently	51	19.4	87.5
Always	33	12.5	100.0
Missing	1	0.4	
Positive Responses	181	68.8	

I recommend growing or harvesting herbs for medical use.

<u>Response</u>	<u>n</u>	<u>%</u>	<u>Cum %</u>
Never	217	82.2	82.2
Sometimes	38	14.4	96.6
Frequently	5	1.9	98.5
Always	4	1.5	100.0
Positive Responses	47	17.8	

Note: Percentages are reported as valid %.

Research Question # 5

To answer the question, “Do nurse practitioners, as nursing agencies, have knowledge about the safe use of herbal remedies?” practitioners were asked to respond to questions 9, 10, 11, 12, and 15 from Part III of the survey.

Question 9 specifically inquired about the frequency that nurse practitioners incorporate their patients' herbal remedies into their treatment plan. Of the 264 FNP respondents, 20.1% (n=53) stated that they "never" utilize this information in their treatment plans. For those indicating some degree of incorporation, 44.7% (n=118) stated "sometimes," 25.8 % (n=68) stated "frequently," and 9.5 % (n=25) stated "always." When combining the positive responses to this question, 79.9% of the respondents at least sometimes incorporated herbal remedies into their patients' treatment plans.

Question 10 investigated the frequency in which nurse practitioners considered herbal remedies safe for pregnant women. For the FNPs respondents, 43.7% (n= 111) reported that they "never" consider herbal remedies safe for pregnant women. However, a large number, 52.8 % (n= 134) reported "sometimes." The lowest numbers were reported for the "frequently" (3.1%, n=8) and "always" (.04%, n=1) categories. Combining the categories "sometimes," "frequently," and "always," 56.3% (n= 143) answered positively; at least sometimes considering herbal remedies to be safe for pregnant women. Missing data was 3.8% (n=10). This relatively large number of missing data may account for those individuals who do not work with pregnant women, as two respondents wrote on their returned survey. It may therefore be inferred that some individuals who had no opinion or no knowledge as to how to respond to the survey question left it blank. All percentages reported are valid percents.

Question 11 assessed the frequency that respondents considered herbal remedies to be safer than manufactured drugs. For the 264 FNP respondents, 33% (n=86) responded "never," 58.6% (n=153) responded "sometimes," 6.1% (n=16) responded

“frequently,” and 2.3% (n=6) responded “always.” Combining the categories “sometimes,” “frequently,” and “always,” 67% (n=175) answered positively; at least sometimes considering herbal remedies to be safer than manufactured drugs. Missing data equaled 1.1% (n=3) and therefore all percentages are reported as valid percents.

Question 12 inquired about the frequency that nurse practitioners consider herbal remedies to be safe for children. In this case, 34.1% (n=89) of the FNP respondents indicated that they “never” consider herbal remedies safe for children. However, 57.1% (n=149) answered that they consider herbal remedies to be “sometimes” safe for children, while a minute group of FNPs answered “frequently” (7.3%, n=19) or “always” (1.5%, n=4). Once again, combining the categories “sometimes,” “frequently,” and “always,” 65.9% (n=172) answered positively; at least sometimes considering herbal remedies to be safe for children. Missing data equaled 1.1% (n=3), therefore all percents reported are valid percents.

Question 15 aimed to investigate the frequency that nurse practitioners, when prescribing medication, consider the herbal remedies used by their patients. Respondents reported a “never” frequency of 12.5% (n=33) and a 34.6% (n=91) response rate for “sometimes.” An almost equal number chose the categories of “frequently” (26.6%, n=70) and “always” (26.2%, n=69). When considering the cumulative positive responses to this question, a large majority, 87.5% (n=230), report that they at least “sometimes” consider the herbal remedies used by their patients when prescribing medication. Missing data equaled 0.4% (n=1), therefore all percents reported are valid percents.

In summary, to answer the research question “Do nurse practitioners, as nursing agencies, have knowledge about the safe use of herbal remedies?” the responses to 3 of the 5 survey questions did not demonstrate knowledge of the safe use of herbal remedies. The three survey items which demonstrated a lack of knowledge dealt with issues of herbal safety in pregnancy, the safety of herbal remedies compared to manufactured drugs, and the safety of herbal remedies for children. The positive answers, given by more than half of the FNP’s, such as “sometimes,” “frequently” or “always” represent unsafe practices as based on the literature review. However, these results should be reviewed with discretion. While not a majority, 43.7% (n=111) did indicate that they “never” consider herbal remedies safe for pregnant women, 33.0% (n=86) “never” consider herbal remedies safer than manufactured drugs and 34.1% (n=89) “never” consider herbal remedies safe for children.

The remaining two survey items, which dealt with issues of incorporating herbal remedies into the patient’s treatment plan and considering the patient’s herbal remedies when prescribing, were answered positively. The positive responses by most of the FNP’s to these survey items represent knowledge of the safe use of herbal remedies as based upon the literature review. Table 9 summarizes the responses as they relate to the survey question.

Table 9

Do Nurse Practitioners, as Nursing Agencies, Have Knowledge About the Safe Use of Herbal Remedies? (N=264)

I incorporate my patient's herbal remedies in their treatment plan.

<u>Response</u>	<u>n</u>	<u>%</u>	<u>Cum %</u>
Never	53	20.1	20.1
Sometimes	118	44.7	64.8
Frequently	68	25.8	90.5
Always	25	9.5	100.0
Positive Responses	211	79.9	

I consider herbal remedies to be safe for pregnant women.

<u>Response</u>	<u>n</u>	<u>%</u>	<u>Cum %</u>
Never	111	43.7	43.7
Sometimes	134	52.8	96.5
Frequently	8	3.1	99.6
Always	1	0.4	100.0
Missing	10	3.8	
Positive Responses	143	56.3	

I consider herbal remedies to be safer than manufactured drugs.

<u>Response</u>	<u>n</u>	<u>%</u>	<u>Cum %</u>
Never	86	33.0	33.0
Sometimes	153	58.6	91.6
Frequently	16	6.1	97.7
Always	6	2.3	100.0
Missing	3	1.1	
Positive Response	175	67.0	

I consider herbal remedies to be safe for children.

<u>Response</u>	<u>n</u>	<u>%</u>	<u>Cum %</u>
Never	89	34.1	34.1
Sometimes	149	57.1	91.2
Frequently	19	7.3	98.5
Always	4	1.5	100.0
Missing	3	1.1	
Positive Response	172	65.9	

When prescribing medications, I consider the herbal remedies my patients are using.

<u>Response</u>	<u>n</u>	<u>%</u>	<u>Cum %</u>
Never	33	12.5	12.5
Sometimes	91	34.6	47.1
Frequently	70	26.6	73.8
Always	69	26.2	100.0
Missing	1	0.4	
Positive Responses	230	87.5	

Note: Percentages are reported as valid %.

Research Question # 6.

To answer the question, “How do nurse practitioners as nursing agencies acquire knowledge of herbal remedies?” respondents were asked to complete Questions 1 and 2 from Part IV of the survey. Question 1 asked nurse practitioners to rate their degree of self-knowledge regarding herbal remedies. Responses ranged from 0 (no knowledge) to 4 (expert knowledge). Of the 264 FNP respondents, 13.7% (n= 36) answered they had “no knowledge” of herbal remedies. The majority of respondents, 55.3% (n=146), stated they had “a little knowledge” of herbal remedies, while less than half of that number claimed “moderate knowledge” (25.1%, n= 66). The remainder of respondents answered “a lot of knowledge” (5.3%, n=14) and one individual (1.1%) considered themselves to have “expert knowledge” of herbal remedies. All in all, a total of 86.3% (n= 227) of FNP respondents reported having at least a little knowledge of herbal remedies. Missing data equals 0.4% (n=1), therefore all percentages are reported as valid percents. Table 10 summarizes the response to Question 1, Part IV.

Table 10

Family Nurse Practitioners Knowledge Concerning Herbal Remedies (N=264)

When it comes to my knowledge concerning herbal remedies, I consider myself to have:

<u>Response</u>	<u>n</u>	<u>%</u>	<u>Cum %</u>
No knowledge	36	13.7	13.7
A little knowledge	146	55.5	69.2
Moderate knowledge	66	25.1	94.3
A lot of knowledge	14	5.3	99.6
Expert knowledge	1	0.4	100.0
Missing	1	0.4	
Positive Responses	227	86.3	

Note. Percentages are reported as valid %.

Question 2 of Part IV surveyed the ways in which nurse practitioners gained knowledge about herbal remedies. A list of 8 possible learning methods was provided. Respondents were asked to choose as many of these methods that applied to their acquisition of knowledge concerning herbal remedies. In addition to the 8 listed categories, respondents could also choose the categories “no knowledge” or “other,” indicating additional methods of learning not listed.

Results indicated that 8.3% (n=22) of the 264 FNP respondents marked the category “no knowledge,” thereby indicating that they had no knowledge of herbal remedies. It is important to note that only 5.3% (n=14) stated, in response to question 1, that they had “no self knowledge” concerning herbal remedies. In contrast, 244 (91.7%) FNP listed at least one category as a method of gaining knowledge about herbal remedies. The mean number of ways the FNP respondents learned about herbal remedies was 2.6. The range of methods utilized by the FNPs spanned from a minimum of 1 to a maximum of 8. The median and the mode were both 2. The four most frequent ways in which the FNPs indicated they learned about herbal remedies were “classes/seminars” 50.2 % (n=132), “personal experiences” 48.5% (n=128), “books” 48.5% (n=128) and “scientific journals” 37.1% (n=98). Table 11 provides the number and percentages of each method respondents identified as ways in which they learned about herbal remedies. In addition to the original 8 fixed choices, 3 additional categories (“my patients,” “herbalists,” and “other NPs”) were identified from analysis of handwritten responses. All other responses written in by respondents, hereby categorized as “other,” were reported as such in Table 11.

Table 11

Family Nurse Practitioner Methods of Learning About Herbal Remedies. (N=264)

Method	n	%
Classes/Seminars	132	50.2
Personal Experiences	128	48.5
Books	128	48.5
Scientific Journals	98	37.1
Holistic Health Magazines	93	35.2
NP Program	34	12.9
Other	27	10.2
Family Tradition	25	9.5
My Patients	17	6.5
Intuition	9	3.4
Herbalists	4	1.5
Other NPs	4	1.5

Note: Respondents were free to choose as many that applied.

To summarize and answer the question “How do nurse practitioners as nursing agencies acquire knowledge of herbal remedies,” respondents answered in a variety of ways. Over 86% of the FNPs reported having at least some knowledge of herbal remedies. Further, most FNP respondents reported learning about herbal remedies from classes/seminars, personal experiences, books, and scientific journals.

Research Question # 7.

“What basic conditioning factors of nurse practitioners are associated with the frequency of recommending herbal remedies to patients?” According to Orem (1985), basic conditioning factors are developmental, socio-cultural, and environmental factors

which influence nurses (in this case, nurse practitioners) in their care of patients. Basic conditioning factors examined for this study were: age, gender, race, religion, practice location, practice setting, years of practice, NP education, national certification, prescriptive authority and how NPs acquired knowledge of herbal remedies.

The two types of tests used to analyze the data were the Kruskal-Wallis test and the Mann-Whitney U-test. The Kruskal-Wallis test and the Mann-Whitney U-tests analyze the relationship between a dependent variable that is ordinal in nature (frequency of recommending herbal remedies to patients) and a categorical independent variable (basic conditioning factors). Nonparametric tests are generally used when the dependent variable is measured on a nominal or ordinal level (Polit, 1996). The null hypothesis is supported when the distribution of the scores for the independent groups are equal and the sum of the ranks (of the dependent variable) in each group are the same. In opposition, the alternative hypothesis is supported when the distribution of the scores for the independent groups are unequal and the sum of the ranks (of the dependent variable) in each group are also unequal (Polit, 1996). Assumptions underlying these tests include: ordinal level scores for the dependent variable, an independent variable with nominal data, and at least 5 or more cases per group (Polit, 1996). Additionally, the Kruskal-Wallis test requires independent variables of 3 or more while the Mann-Whitney U-test requires only 2. These assumptions were met before analysis began.

The Kruskal-Wallis test was used to analyze the relationship between basic conditioning factors of age, race, religion, NP education, practice location, practice setting, years of NP practice and the frequency of categories that FNPs reported recommending herbal remedies to their patients. Results indicated that there were no

significant differences between groups within the categories of age ($X^2 = 3.207$, $p = .361$), religion ($X^2 = 12.272$, $p = .092$), NP education ($X^2 = .727$, $p = .695$), practice location ($X^2 = .133$, $p = .936$), practice setting ($X^2 = 2.938$, $p = .401$), years of practice ($X^2 = .5085$, $p = .9170$), and the frequency of recommending herbal remedies. However, there was a significant difference between groups in the category of race ($X^2 = 11.557$, $p = .041$). Those FNP's who identified as Hispanic ($n = 6$) were more likely to recommend herbal remedies than any other racial group (mean rank 186). Those respondents identifying as Asian ($n = 2$) were least likely to recommend herbal remedies (mean rank = 32.50), followed by African American ($n = 4$, mean rank 85), American Indian ($n = 2$, mean rank 85) and Caucasian ($n = 241$, mean rank 128.89) respondents. These findings must be viewed with caution however, as the low number of non-Caucasian FNP's who responded to this survey may not be representative of the total non-Caucasian FNP population and could lend to false results. Table 12 summarizes the Kruskal-Wallis test results of the selected basic conditioning factors as they relate to the frequency of recommending herbal remedies.

The Mann-Whitney U-test was used to analyze the association between the basic conditioning factors of gender, national certification and prescriptive authority and the frequency that FNP's reported recommending herbal remedies to their patients. Results indicated that there were no significant differences between groups within the gender ($U = 1713.5$, $p = .705$), national certification ($U = 2145$, $p = .361$), and prescriptive authority categories ($U = 6223.5$, $p = .8305$).

Table 12

Selected Basic Conditioning Factors as Related to the Frequency of Recommending Herbal Remedies (N = 264)

<u>Variable</u>	<u>n</u>	<u>X²</u>	<u>Significance</u>	<u>Mean Rank</u>
Age	262	3.207	.361	-
Religion	255	12.272	.092	-
NP Education	258	.727	.695	-
Practice Location	263	.133	.936	-
Practice Setting	263	2.938	.401	-
Years of Practice	263	.508	.9170	-
Race	262	11.557	.041	-
Hispanic	6	-	-	186.00
Caucasian	241	-	-	128.89
American				
Indian	2	-	-	85.00
African				
American	4	-	-	85.00
Asian	2	-	-	32.50

Note. Dashes indicate there was no applicable data.

The Mann-Whitney U-test was also used to test the association of how FNP respondents learned about herbal remedies and the frequency of recommending herbal remedies to their patients. Results indicated that those who learned from intuition, herbalists, other NPs, their patients, and/or “other” methods, were not more likely to recommend herbal remedies to their patients than those who learned in other ways. However, analysis did indicate that those who learned about herbal remedies from holistic health magazines, their NP program, personal experiences, scientific journals, books, and classes/seminars were more likely to recommend herbal remedies than those who learned from intuition, an herbalist, other NPs, patients or other methods. Table 13 summarizes the data which supports the association of how FNPs learned about herbal remedies related to the frequency of recommending herbal remedies.

Table 13

FNPs' Methods of Learning Associated with Recommending Herbal Remedies.

(N=264)					
Method of learning	n	Mean Rank	Sum of Ranks	U- Statistic	Significance
Holistic Health Magazines					
No	171	113.11	19342	4636	.000
Yes	93	168.15	15638		
NP Program					
No	230	127.90	29418	2853	.004
Yes	34	163.00	5562		
Personal Experiences					
No	136	114.88	15623	6307	.000
Yes	128	151.23	19357		
Scientific Journals					
No	166	119.73	19875	6014	.000
Yes	98	154.13	15105		
Books					
No	136	111.50	15164	5848	.000
Yes	128	154.81	19816		
Classes/Seminars					
No	132	117.02	15447	6669	.000
Yes	132	147.98	19533		
Intuition					
No	255	133.38	34011	924	.266
Yes	9	107.67	969		
Herbalist					
No	260	131.95	34308	378	.294
Yes	4	168.00	672		
Other NPs					
No	260	132.74	34513	457	.642
Yes	4	168.00	672		
My Patients					
No	248	132.74	32920	1924	.821
Yes	16	128.75	2060		
Other Methods					
No	237	129.79	30760	2557	.056
Yes	27	156.30	4220		

In conclusion, to the answer question “What basic conditioning factors of nurse practitioners are associated with the frequency of recommending herbal remedies to patients?”, analysis indicated that those who identified as Hispanic were more likely to recommend herbal remedies. Further, results indicated that those who learned from holistic health magazines, their NP program, personal experiences, scientific journals, and books were more likely to recommend herbal remedies than those who learned from other methods inquired about.

Additional Results.

Additional analysis was used to determine the relationship between FNPs’ self-rated knowledge of herbal remedies (Question 1, Part IV) and the frequency of recommending herbal remedies in the previous 12 months (Question 1, Part III). To perform the analysis, two statistical procedures were used: cross tabulation and an index of correlation, the Spearman’s rank-order test. Additionally, the mean frequency of herbal remedies recommended (Part II of the survey) in relation to the level of knowledge, was investigated.

Cross tabulation allows for the visual examination of the relationships between the categories contained within the two variables in question. The data are arranged in rows and columns, the intersection of which is known as a cell. Within each cell there are corresponding frequencies and percentages (Polit, 1996).

Spearman’s rank-order correlation is a non-parametric analog of Pearson’s product moment correlation (also known as Pearson’s r). This test is used when the data violates an assumption, such as being ordinal data, of Pearson’s r . The outcome of Spearman’s rank-order correlation is a correlation coefficient. The coefficient denotes

the degree of relationship between the two variables (Polit, 1996). The coefficient can range between +1.00 (a perfect positive relationship) or -1.00 (a perfect negative, or inverse relationship). A score of zero indicates there is no relationship between the two variables (Polit, 1996). Furthermore, when the coefficient is squared, the resulting number is the percent of variance explained by the relationship of the two variables (Burns & Grove, 1997). The remaining percent is explained by other factors or variables. In other words, if the correlation between the two variables were perfect, than 100% of the variance between the two variables would be explained by their relationship (Polit, 1996).

Cross tabulation results indicate that of the 36 FNPs with “no knowledge” of herbal remedies, most had not recommended herbal remedies (61.1%, n=22) in the last 12 months. However, 36.1% (n=13) of the respondents with “no knowledge” stated that they had “sometimes” recommended herbal remedies in the previous 12 months. This group was 4.9% of the entire study sample. Additional analysis determined that the mean number of herbs recommended by the FNPs with “no knowledge” was 1.08.

Of the 146 FNPs who had “a little knowledge” of herbal remedies, most stated that they had “sometimes” (68.5%, n=100) recommended them in the last 12 months. Further, 25.3% (n=37) of those with a “little knowledge” stated that they “never” recommended herbal remedies. The mean number of herbal remedies recommended by those with “a little knowledge” was 3.35.

Of the 66 FNPs who stated they had “moderate knowledge” of herbal remedies, most stated they had “sometimes” (47%, n=31) recommended, followed by “frequently” (37.9%, n=25) recommended herbal remedies in the previous 12 months. The mean

number of herbs recommended by those who stated they had “moderate knowledge” was 8.45.

Of the 14 FNPs who considered themselves to have “a lot of knowledge” about herbal remedies, 50% ($n=7$) “frequently” recommended herbal remedies in the previous 12 months. The mean number of herbs recommended by this group was 9.14.

Only one individual reported as having “expert knowledge” of herbal remedies. This individual reported that they “frequently” recommended them in the past 12 months. Further, this individual responded that they had recommended 26 of the herbs from the checklist of 53, contained in Part II of the survey.

Results of the Spearman’s rank order correlation test revealed a correlation coefficient of .46511 ($p=.0000$). A coefficient above .30 and less than .70 is said to have a moderate correlation (Holm & Llewellyn, 1986). Therefore, the coefficient in this case can be interpreted to mean there is a moderate relationship between the respondents self-rated knowledge of herbal remedies and the frequency of recommending herbal remedies in the previous 12 months. After squaring the coefficient, 21.6% of the variance between the FNPs’ knowledge of herbal remedies and the frequency of recommending herbal remedies can be accounted for. The remaining 78.4 % must be attributed to other factors.

In conclusion, results generally indicated that as FNPs’ level of self-reported knowledge increased, the respondent’s frequency of recommending herbal remedies increased as well. Further, as respondents’ level of knowledge increased so did the mean number of herbs that were recommended in the previous 12 months. However, these results need to be viewed with caution as 31.6% of the respondents who stated they had

“no knowledge” were “sometimes” recommending herbal remedies and there was only one case reported for the “expert knowledge” category.

Spearman’s rank order correlation test exhibited a modest coefficient, demonstrating a moderate relationship between respondents’ self-reported level of knowledge of herbal remedies and the frequency of recommending herbal remedies in the previous 12 months. Further, it was concluded that other factors, unrelated to knowledge, account for the majority of the variance between the two variables. Table 14 provides a cross tabulation of the two variables.

Table 14

FNP Knowledge of Herbal Remedies in Relation to the Frequency of Recommending Herbal Remedies.

Knowledge of Herbal Remedies	Frequency of recommending herbal remedies in the last 12 months.				Row Total
	Never	Sometimes	Frequently	Always	
No Knowledge	n=22 61.1%	n=13 36.1%	n=1 2.8%		n=36 13.7%
A Little Knowledge	n=37 25.3%	n=100 68.5%	n=9 6.2%		n=146 55.5%
Moderate Knowledge	n=8 12.1%	n=31 47.0%	n=25 37.9%	n=2 3.0%	n=66 25.1%
A Lot of Knowledge	n=2 14.3%	n=4 28.6%	n=7 50.0%	n=1 7.1%	n=14 5.3%
Expert Knowledge			n=1 100.0%		n=1 0.4%
					n= 264 100.0%

Note: Percents within the cell are row %.

Summary of Results

This chapter has summarized the findings and results of the inclusion of herbal remedies in the patient care practices of nurse practitioners. A breakdown of the specialization characteristics of the original sample was given and a comparison to national nurse practitioner statistics was provided. It was explained that 40 of the original returned questionnaires would not be used as part of the study sample in order to ensure a cleaner, more clearer analysis. Therefore, the sample for this study consisted exclusively family nurse practitioners as conclusions about other groups seemed inappropriate.

Demographic characteristics as well as professional characteristics of the family nurse practitioner respondents were given. It was summarized that most of the FNPs were female, Caucasian, and Protestant. Furthermore, the majority of respondents were nationally certified, held a Master's degree and practiced in an urban location. It was also discussed that most worked in a private practice setting, held collaborative prescriptive authority and were new to the family nurse practitioner field, reporting 2 or less years of practice.

The research questions were re-stated and findings were presented accordingly. Results indicated a positive response to research questions 1, 2, 3, and 4. FNPs are at a minimum sometimes: a) evaluating the self-care practices of their patients who utilize herbal remedies; b) recommending herbal remedies; c) educating their patients about acquisition; d) educating their patients about the use of herbal remedies, and e) have knowledge about the safe acquisition of herbal remedies. For research question 5, the results were not affirming. A majority of family nurse practitioners did not respond to

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the survey items in a manner that indicated they had knowledge about the safe use of herbal remedies.

Research Question 6 asked how nurse practitioners acquired knowledge of herbal remedies. The majority reported having at least “some knowledge” about herbal remedies, and the ways in which they learned about these remedies varied. The four most frequent methods of learning included classes/seminars, personal experiences, books, and scientific journals. Research Question 7 asked what basic conditioning factors are associated with the frequency of recommending herbal remedies. Results indicated that there was a significant difference between groups in the category of race. Those who identified as Hispanic were more likely to recommend herbal remedies than any other racial group. Findings were to be viewed with caution, however, because of the small number of Hispanic respondents. Results also revealed that those who learned from holistic health magazines, their NP program, personal experiences, scientific journals and books were more likely to recommend herbal remedies.

Additional analysis was undertaken to determine the relationship between FNP’s self-rated knowledge of herbal remedies and the frequency of recommending herbal remedies in the previous 12 months. Results generally indicated that as FNP’s level of knowledge increased, the number of herbs recommended and frequency of recommending them increased as well. Correlation statistics indicated a moderate relationship between the respondents level of knowledge and the frequency of recommending herbal remedies.

CHAPTER VI

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

This chapter presents a brief summary of the study and discussion of the findings as they relate to the description of the sample, research questions, and additional analysis that was performed. From the discussion, conclusions are presented. Additionally, limitation to the study, implications for nursing practice, and recommendations for further research are also included in this chapter.

Summary of the Study

A descriptive, exploratory study was done to describe the frequency of nurse practitioner patient care behaviors as they related to their patients who utilize herbal remedies. The research questions were developed based upon the review of literature and Dorothea Orem's theory of nursing, the study's conceptual framework. In general, the study aimed to investigate if nurse practitioners: evaluate the self-care practices of their patients who utilize herbal remedies; recommend herbal remedies; educate their patients about herbal remedies; have knowledge concerning the safe use and acquisition of herbal remedies; and where they gained such information. Finally, the study asked if there are factors related to nurse practitioners (such as specialty, where one gained knowledge of

herbal remedies, etc.) which are associated with the frequency of recommending herbal remedies.

A survey was constructed based upon the review of literature, Dorothea Orem's conceptual framework and the research questions. The survey was mailed to 600 members of the American Academy of Nurse Practitioners nationwide. Frequency distributions and descriptive statistics were used to analyze the data on the demographic information and to describe nurse practitioner patient care behaviors as they relate to their patients' use of herbal remedies. To analyze the relationship between factors associated with nurse practitioners and the frequency of recommending herbal remedies, two nonparametric tests, Kruskal-Wallis and the Mann-Whitney U-tests were used. Additional data analysis, using cross tabulation and the Spearman's rank-order correlation, was under taken to determine the relationship between the respondent's self-rated knowledge of herbal remedies and the frequency of recommending herbal remedies in the previous 12 months.

Discussion of Findings

Description of the Sample

Of the 304 returned questionnaires, 264 of the respondents identified exclusively as family nurse practitioners. It was determined, in order to ensure a cleaner, more clearer analysis, that the study sample would consist exclusively of family nurse practitioners. There may be several reasons for the high response rate from family nurse practitioners. First, although the American Academy of Nurse Practitioners represents all specialties of the profession, its membership may contain a disproportionate number of

family nurse practitioners and therefore, the randomized membership mailing labels acquired for this study could represent such a disproportion. Another explanation could be that for some reason, family nurse practitioners simply responded to the study survey at a much greater rate than their non-family nurse practitioner counterparts.

A third, and potential explanation may be related to the increase in the number of family nurse practitioner graduates in recent times. Since 1991 there has been a 200% increase in the number of NP programs and graduates in this country (Pan, Straub & Geller, 1997). With a renewed interest in primary care, it makes sense that many of these new graduates are family nurse practitioners. Based on this 200% increase, it makes sense that professional organizations such as the American Academy of Nurse Practitioners are gaining a greater number of new graduates within their ranks. Additionally it can be speculated that new graduates, many of whom have just finished their own research, would sympathetically respond to a graduate student research questionnaire at a much higher rate. Indeed, both of these speculations are supported by the large number of respondents, 40.2 %, who reported being in practice between 0-2 years and by the fact that the American Academy of Nurse Practitioners' membership has grown by almost 40% since 1995 with nearly half of their members as students (American Academy, 1997).

Of the 264 FNP respondents, the majority were female (91.7%) and "Caucasian" (91.3%). Approximately half reported they were between the ages of 36-45 (45.5%). Concerning the area of religion, 37.9% reported they were "Protestant," 29.2% reported they were "Catholic" while 10.6% reported they had "no religious preference." Concerning the professional characteristics of the respondents, the majority reported they

were nationally certified (91.3%) and had a Master's degree (71.3%). Further, most of the respondents practiced in an urban location (42%) while 31.1% practiced in rural areas and 26.5% practiced in small town settings.

Considering the short period of time many of the FNP respondents had been in practice could also help explain the number of practitioners who failed to answer the question concerning prescriptive authority (13.6%, n=36). Depending on the state of authorization, new nurse practitioners may have to complete a stipulated number of hours of practice before prescriptive authority is granted. Further, the application process for a nurse practitioner, regardless of experience, may take anywhere from a few weeks to a few months to successfully complete (Pearson, 1998). Thus, for new practitioners within the midst of this application process, there was no choice available to reflect their prescriptive position.

Concerning their practice setting, the largest number of respondents (28.4%) indicated that they worked in a "private practice" setting, followed by "free standing primary care" (18.4%), "outpatient clinic" (17%), and "E.D. or urgent care" (4.9%). The remaining 7.2% reported almost equally between working in a "health department," "HMO," or "hospital" setting. A large number of respondents, 23.4%, picked the category of "other" as well. The difficulty with this item has to do with how one defines his or her practice setting. For instance, respondents familiar with the regulation and licensure of a health care facility may define a clinic as an "outpatient" clinic or as a "free standing primary care" clinic. While those more familiar with the financial aspects of the clinic may define it as a "private practice" or as an "HMO" clinic. Simply put, many of the categories concerning the survey item "practice setting" were not mutually exclusive.

Therefore, it becomes difficult to determine the true impact, if any, that practice setting has upon nurse practitioners' inclusion of herbal remedies in their patient care practices.

In summary, the vast majority of respondents identified as family nurse practitioners and this group was used for the data analysis in this study. Because the sample was drawn from a professional association and not from a randomized national sample it is not generalizable to all family nurse practitioners. At best, the sample represents the family nurse practitioner members of the American Academy of Nurse Practitioners.

Research Question #1

To answer the question, "Are nurse practitioners evaluating the self-care practices of their patients who utilize herbal remedies?" respondents were to answer questions concerning the frequency with which they ask their patients about: a) the use of herbs in their health history, b) where they gain information about herbal preparations and, c) where they acquire herbal remedies.

Eisenberg, et.al., in their 1993 study, concluded that one third of all Americans used alternative therapies and that virtually every physician (and therefore every nurse practitioner) routinely sees patients who are using some form of unconventional medicine. McGregor (1996) found that a majority of patients who utilize herbal remedies do not tell their health care provider. Given the information contained in the Eisenberg and McGregor studies, it becomes apparent how important it is for the nurse practitioner to ask all patients, consistently, about the use of herbal remedies in their health history. Indeed this study's results indicated that most (87.5%, n=231) of the FNP respondents at least "sometimes" ask about herbal remedies in their patients' health histories. Further,

the majority also asks, at least “sometimes,” where their patients learned about and acquired herbal remedies. While it is true that the majority reported positively, one must consider the implications of not asking consistently.

Herbal remedies are unregulated, potentially potent pharmacologically active substances that patients are self-prescribing without the guidance of the family nurse practitioner. Harmful, even deadly interactions can take place if the FNP prescribes medication without the knowledge of the herbal substances the patient is self-prescribing (Saxe, 1987). Most NPs would agree that a thorough history of the patient’s current health status, including prescription and over-the counter medications, is an important standard of patient care. It is a wonder that herbal remedies do not carry the same implication. This lack of patient care standardization, as it relates to herbal remedies, may be due to the fact that health care providers, family nurse practitioners included, still believe at some level that herbal remedies are safe, natural substances with little risk of harm to those who use them. The belief that herbal remedies are safe, harmless substances may be related to the lack of formalized training especially within the FNP’s program of study. Only 12.9% indicated that they learned of herbal remedies in their NP program of study.

In conclusion, “Are nurse practitioners evaluating the self-care practices of their patients who utilize herbal remedies?” the response is a rhetorical “sometimes.” Family nurse practitioners in this study reported overwhelmingly that they are inconsistently performing this task.

Research Question # 2

To answer the question, “Are nurse practitioners recommending herbal remedies to meet the therapeutic self-care demands of their patients?” respondents were asked to indicate on a checklist of 53 pre-designated herbal remedies, which herbs they had recommended in the previous 12 months. Furthermore, respondents were asked the frequency that they had recommended herbal remedies and if they believed the use of herbal remedies was an important part of their patients’ self care.

In regards to frequency of recommending herbal remedies, the majority (73.9%, n=195) of the respondents reported that they at least “sometimes” do so. This corresponds to the checklist of herbs, with 76.1% (n=201) indicating they had recommended at least one of the 53 herbs in the last year. Based on these statistics, and comparing them to the findings in McGraw’s 1994 study that only 41.8% of NPs “sometimes” recommended herbal remedies, it could be proposed that NPs are increasingly recommending herbs to meet their patients’ therapeutic needs. However, a comparison must be viewed with discrimination, as the McGraw study consisted of less than half FNP respondents.

It has been discussed that herbs are being recommended despite the fact that information concerning these substances is mostly anecdotal in nature. The danger of recommending herbs without standardized therapeutic doses, and scientific evidence of safety is evident. It is intriguing to imagine the potential professional risks that some FNPs are willing to take by recommending such unregulated remedies. In fact, study results indicated that the second most frequently prescribed herb from the list of 53 was St. John’s Wort. Of interest is the fact that the first clinical trial of St. John’s Wort, an

herb widely used in Europe for the treatment of depression, is just now being done by the National Institutes of Health (National Institutes of Health, 1997).

The willingness to recommend herbal remedies may be partially related to the belief that herbal remedies are safe and natural substances. Another possible explanation is that the FNP's may perceive their patients desiring a more "holistic" and natural approach to medicine. This proposition is partially supported by the fact that a majority of respondents (89.4%) believe that herbal remedies are at least "sometimes" important to their patients' self-care practices. It seems logical to surmise that if FNP's feel that herbal remedies are important to their patients, they may be more willing to recommend them. This may be especially true if family nurse practitioners view herbal remedies as safe, natural substances as many lay people do.

In conclusion, the results indicate that family nurse practitioner respondents are indeed recommending herbal remedies. Further, FNP's may be recommending herbal remedies to their patients out of the belief that they are an important part of their patients' self-care. FNP's may believe that herbal remedies are effective, safe and desired by their patients. These beliefs may contribute to the FNP's willingness to prescribe herbal remedies to their patients.

Research Question # 3

"Do nurse practitioners educate patients about acquisition and utilization of herbal remedies, so they may act as their own self-care agency?" To answer this question, FNP respondents were asked the frequency in which they teach their patients how to use and where to acquire herbal remedies.

In regard to teaching their patients how to use herbal remedies, 36.4% of the respondents stated that they “never” do, while 63.6% provide this information to their patients at least “sometimes.” In regard to teaching patients how to acquire herbal remedies, 42.8% stated they “never” instruct, but 57.2% do so at least “sometimes.” These results indicate that FNP’s are inconsistently providing this information. This inconsistency may make it difficult for patients who utilize herbal remedies to act as their own self-care agencies. In other words, some patients are not receiving education concerning herbal remedies from the FNP. This lack of information makes it difficult for patients to assess the efficacy and safety (and thereby report problems) concerning their herbal remedies.

Another reason these numbers are noteworthy is that a large majority of FNP’s, (73.9%), are at least “sometimes” recommending herbal remedies to their patients, and many patients are self-prescribing herbal remedies (McGraw, 1996). Given these results, it can be concluded that many FNP’s are recommending herbal remedies without providing information on how to use or acquire them. Of interest is the fact that most FNP’s would not think of prescribing over-the-counter or scheduled medications without first teaching their patients about the implications, dosage, and potential interactions of their recommendations. Further, it is believed that most FNP’s would not recommend medications if they felt their patients might acquire them from sources that could not guarantee their freedom from toxins, non-standardized dosing or mislabeling. However, the aforementioned statistics supports this very concern; for those who recommend herbal remedies, many evidently do not teach their patients’ how to safely use them or acquire them.

It can be suggested then that FNPs who recommend but do not teach about the safe use of herbal remedies may lack information themselves on exactly how to acquire or use them. Recommending a remedy without having full knowledge about how to use and acquire it may be related to beliefs about its inherent safety. A belief about the safety of herbal remedies, coupled with the lack of formal practice standards may be responsible for the practice discrepancy.

Research Question # 4

To answer the question, “Do nurse practitioners, as nursing agencies, have knowledge about the safe acquisition of herbal remedies?” subjects were asked to respond to two survey questions. The two questions inquired about the frequency that nurse practitioners recommend standardized, commercially prepared herbal preparations and the frequency with which they recommend growing or harvesting herbs for medicinal use. In her 1993 article, Zagorsky makes recommendations regarding the safe acquisition of herbal remedies. Among her recommendations are that herbs should be bought in the form of standardized capsules or tinctures from a reputable store. Standardized preparations are thought to be safer as doses are specified on the container. Further, she discourages growing or harvesting herbs for medicinal use, as herbs gathered in this manner are not standardized. Additionally, herbs grown or harvested run the risk of contamination from soil toxins and misidentification.

Most of the respondents’ answers affirmed that they have at least some knowledge of the safe acquisition of herbal remedies. A large percentage (82.2%) of the FNPs stated they “never” recommend growing or harvesting herbs, while 68.8% stated that they at least “sometimes” recommend standardized, commercially prepared herbal

remedies to their patients. This last statement should be viewed with some discrimination. First, because of the way the question was written, it is unclear if the respondents interpreted the question as inquiring about what they personally recommend, or what they recommend to their patients who are self-prescribing herbal remedies. Further, while it is true that a majority of respondents stated they at least “sometimes” recommend standardized, commercially prepared herbal preparations, 31.2% stated they “never” engaged in this practice. Therefore, it appears that while FNP respondents have some knowledge concerning the safe acquisition of herbal remedies, they are inconsistently implementing this knowledge when counseling their patients.

Research Question #5

“Do nurse practitioners, as nursing agencies, have knowledge about the safe use of herbal remedies?” To answer this question, respondents were asked to report the frequency of incorporating herbal remedies into treatment plans. Additionally, respondents were asked to report their practices considering a) their patients’ herbal remedies when prescribing medications; b) herbal remedies to be safe for pregnant women; c) herbal remedies to be safe for children and; d) herbal remedies as safe as manufactured drugs.

Results indicate that the majority of FNPs (79.9%) at least “sometimes” incorporate the use of herbal remedies into patients’ treatment plans. This response indicates that FNPs have some knowledge about the safe use of herbal remedies as it relates to this specific question. Since herbal remedies may have potentially potent, pharmacologically active substances, incorporating them into a patient’s treatment plan is advantageous. Documentation, and therefore knowledge, of all of the patient’s

pharmacologically active substances, may help to prevent potential drug-plant interactions (Saxe, 1987).

The majority of respondents (87.5%) answered that they at least “sometimes” consider the herbal remedies used by their patients when prescribing medication. The positive response to this question may reflect that the majority of FNP respondents understand the necessity of knowing what herbal remedies their patients are taking to avoid potential drug-plant interactions or unwanted side-effects. Of concern is the inconsistency that the FNP respondents are performing this task. Perhaps, a more revealing question would have been to ask if NPs consider the prescribed medications their patients are taking when recommending herbal remedies.

Alarming, a large number of FNPs (56.3%) considered herbal remedies at least “sometimes” safe for pregnant women. Likewise, 65.9% “sometimes” considered herbal remedies to be safe for children. According to Youngkin and Israel (1996), these beliefs may lead to dangerous practice behaviors. The authors recommend that practitioners should not promote the use of herbal remedies for pregnant women and children, as these substances may be dangerous to these patient groups.

Equally alarming is the finding that a majority of FNPs (76%) at least “sometimes” consider herbal remedies to be safer than manufactured drugs. This response demonstrates that FNPs do not have accurate knowledge about the safe use of herbal remedies. Saxe, in his 1987 article, states that many of the subtle side effects of medicinal herbs are generally not known. Further, drug-plant interactions can occur as may potentially fatal adverse reactions to herbal substances.

The reason that most FNP believe that herbal remedies are sometimes safe for pregnant women , children and safer than manufactured drugs may be held in the belief of herbal remedies inherent safety. It is easy to speculate that FNPs (like many lay people) may consider some herbs, such as garlic for instance, so commonly used and so apparently innocuous that their safety (especially compared to manufactured drugs), is not questioned or even considered. However Dubick, in his 1986 article, suggests that even an herbal substance so common as garlic is not without its inherent risks. The author points out that garlic, taken as a preparation, may inhibit lipid synthesis and have blood-thinning properties. He continues to say that one of the potential risks for patients taking garlic includes potentiating other blood thinning agents like the commonly taken aspirin. Additionally, Garlic can induce contact dermatitis, vomiting, diarrhea, weight loss, anorexia, and flatulence.

Another example of the danger brought on by assuming that herbal remedies are inherently safe can be seen by examination of the herbal preparation known as cholestrin. Cholestrin (a Chinese herb made of rice and yeast) is intended to lower cholesterol levels. Recently the Food and Drug Administration voiced concerns about its safety as the herb contains lovastatin, the active ingredient in the prescription drug Mevacor ("NP Therapeutics," 1998). Lovastatin, which is not approved by the Food and Drug Administration the use in children or during pregnancy, can cause liver toxicity and a potentially fatal muscular disease; the chances for which are increased when the drug is taken with certain antibiotics or niacin (Leaf, 1992).

To conclude, the responses to 3 of the 5 survey items did not demonstrate that FNPs have knowledge of the safe use of herbal remedies. The three survey items, which

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demonstrated a lack of knowledge, dealt with the safety of herbal remedies compared to manufactured drugs, herbal safety in pregnancy and the safety of herbal remedies for children. The remaining two survey items, which dealt with issues of incorporating herbal remedies into patients' treatment plans and considering patients' herbal remedies when prescribing medication, were answered positively. The positive responses affirmed the FNP's knowledge of the safe use of herbal remedies as it relates to the two surveyed items.

Research Question # 6

"How do nurse practitioners as nursing agencies acquire knowledge of herbal remedies?" To answer this question, respondents were first asked to rate their degree of self-knowledge regarding herbal remedies. Results indicated that a large number of FNP's (86%) reported having at least some knowledge of herbal remedies.

Secondly, respondents were asked all the ways in which they learned about herbal remedies. Results indicated that most FNP's learned about herbal remedies from classes/seminars (50.2%), personal experiences (48.5%), books (48.5%) and scientific journals (37.1%). Only 12.9% of FNP's learned of herbal remedies in their NP program, while 9.2% of FNP's reported gaining knowledge about herbal remedies from their family tradition. Further, the smallest number of respondents (1.5%) reported learning equally from herbalists or other NPs.

It is clear from the results that FNP's learn of herbal remedies in a variety of ways. Some methods that FNP's have used (such as personal experiences or from their family tradition) are neither professional or formal. Further, learning from an expert, the herbalist, is the least reported method of gaining knowledge concerning herbal remedies.

As a consequence of these results, query as to why nurse practitioners, as professionals, would recommend, counsel or instruct patients concerning the use of any therapeutic modality, including herbal remedies, without formal professional training arises. Answers to such an inquiry, may be contained within the frame of reference for this study; Dorothea Orem's theory of nursing.

Dorothea Orem in her theory of nursing, surmises that nurses, like patients, are influenced by interrelated basic conditioning factors. Basic conditioning factors include one's age, gender, race, religion, formal education, as well as familial, cultural and personal experiences (Orem, 1985). Inherent in her theory is that nurses bring the totality of who they are, not just their professional training, to their occupation. In other words, basic conditioning factors influence how a nurse assesses a patient or the way she/he prescribes a therapeutic measure for the patient (Orem, 1985). Therefore, keeping in mind this theory of nursing and the influence of basic conditioning factors, it is not difficult to understand how some FNPs consider informal methods of learning as sources for knowledge in regard to herbal remedies.

Research Question #7

"What basic conditioning factors of nurse practitioners are associated with the frequency of recommending herbal remedies to patients?" To answer this question, two nonparametric tests were used to examine the association between the basic conditioning factors of the FNPs and the frequency in which they recommended herbal remedies to their patients.

The Kruskal-Wallis test was used to analyze the relationship between basic conditioning factors of age, race, religion, NP education, practice location, practice

setting, years of NP practice and the frequency that FNPs reported recommending herbal remedies to their patients. Results indicated that there were no significant differences between groups for the categories of age and religion.

This latter finding was interesting as it included those who identified as being “New Age” (n=5) and “Native American” (n=2) in their religious affiliation. Both of these religious groups are thought of as frequently using herbal medicine as part of their spiritual and healing practices (Engelbretson & Wardell, 1993; Lipp, 1996). However the number of respondents who reported being either “New Age” or “Native American” were probably too small to significantly impact the study findings.

Results also indicated that there was no significant differences between groups for the categories of NP education, practice location, practice setting, and years of NP practice. However, there was a significant difference between groups in the category of race ($X^2=11.557$, $p=.041$). Those FNPs who identified as Hispanic (n=6) were more likely to recommend herbal remedies than any other racial group. Those respondents identifying as Asian (n=2) were least likely to recommend herbal remedies, followed by African American (n=4), American Indian (n=2,) and Caucasian (n=241) respondents. Again, these results need to be viewed with caution because of the small number of minority respondents.

It could be interesting to speculate the reasons for the differences between racial groups as they relate to the frequency of recommending herbal remedies. For instance, those of Asian and American Indian decent are traditionally thought to integrate the use of herbal remedies in medicinal practices (Lipp, 1996). However, categorical conclusions along racial lines are certainly inappropriate given the fact that the survey did

not query respondents concerning their level of cultural identification or assimilation. In other words, for those who identified as racial minorities, there is no way of discerning if their responses are due to their identification with their traditional culture or other, unaccounted factors. Additionally, given the low number of non-Caucasian FNP who responded to this survey, it would not be prudent to assume that they represent the total non-Caucasian FNP population. Therefore, any generalizations drawn from the non-Caucasian respondents in regard to race and the frequency of recommending herbal remedies, may lead to false interpretations of the data.

The Mann-Whitney U-test was used to analyze the association between the basic conditioning factors of gender, national certification and prescriptive authority and the frequency that FNPs reported recommending herbal remedies to their patients. Results indicated that there were no significant differences between groups within the gender, national certification, and prescriptive authority categories.

It was surprising that those who had autonomous prescriptive authority did not recommend herbal remedies at a greater rate than those who had collaborative authority. It was suggested that those with collaborative authority would be less likely to recommend herbal remedies as they would be less independent, likely working under the supervision of another provider or under the direction of prescriptive protocols (Pearson, 1998). One possible explanation for the results of this study may be related to the large number of respondents (40.2%) who reported being in practice less than two years. Again, it is unclear as to the exact state of prescriptive authority for this population. It is not unreasonable to think that many of these new nurse practitioners are still working, at least functionally, in close collaborative relationships with other providers. It is

interesting to speculate what will happen, in relation to recommending herbal remedies, when this population becomes more experienced and more autonomous in their prescriptive practices.

The Mann-Whitney U-test was also used to test the association of how FNP respondents learned about herbal remedies and the frequency of recommending herbal remedies to their patients. Results indicated that those who learned from intuition, herbalists, other NPs, their patients, and/or “other” methods, were not more likely to recommend herbal remedies to their patients. However, analysis did indicate that those who learned about herbal remedies from holistic health magazines, their NP program, personal experiences, scientific journals, books, and classes/seminars were more likely to recommend herbal remedies.

From these results, it can be concluded that family nurse practitioners recommend herbal remedies based upon a variety of formal and informal ways of learning. With the exception of holistic health magazines and personal experiences, most of the methods of knowing about herbal remedies that are associated with the frequency of recommending herbal remedies are somewhat formal methods. However, since the methods of learning were not quantified in relationship to their order of importance on the questionnaire, it is not clear which way of knowing is more important in their relation to recommending herbal remedies. Further, it is not clear how much and what type of knowledge was gained from each method of learning experienced. A respondent may have checked off that they learned about herbal remedies in their NP program but how much and what they learned is not known.

Further, it would be interesting to know what types of personal experiences are actually associated with the frequency of recommending herbal remedies. It may be speculated that those who have used herbal remedies personally may be more inclined to recommend them to their patients.

In conclusion, to answer the question “What basic conditioning factors of nurse practitioners are associated with the frequency of recommending herbal remedies to patients?”, analysis indicated that those who identified as Hispanic were more likely to recommend herbal remedies. Results also indicated that those who learned from holistic health magazines, their NP program, personal experiences, scientific journals, and books were more likely to recommend herbal remedies than those with other ways of learning.

Additional Results

Additional analysis was used to determine the relationship between the FNP’s self-rated knowledge of herbal remedies and the frequency of recommending herbal remedies in the previous 12 months. This additional investigation was not in the original study proposal, however after review, an analysis of the respondents’ reported level of self-knowledge as it related to their level of recommending herbal remedies seemed prudent. To perform the analysis, two statistical procedures were used: cross tabulation and Spearman’s rank-order test which is a non-parametric index of correlation.

Results generally indicated that as FNP’s level of self-reported knowledge increased, so did their frequency of recommending herbal remedies. Additionally, as the respondents’ level of knowledge increased so did the mean number of herbs that were recommended. However, 31.6% of those who stated they had “no knowledge” of herbal

remedies were “sometimes” recommending them to their patients. It should be kept in mind that this subgroup represents 4.9% ($n=13$) of the 264 FNP respondents.

It is difficult to understand how some nurse practitioners could claim to have “no knowledge” of herbal remedies yet “sometimes” recommend them to their patients. One possible explanation, may again be contained in the seemingly innocuous nature of herbal remedies. Some FNPs may consider herbal substances like garlic and cranberry so commonly used, so safe, that they essentially do not require knowledge about their medicinal properties in order to recommend them to patients.

Another explanation for the results may be that the respondents simply did not understand the question. It is possible that some practitioners may occasionally recommend to a patient an independent exploration of herbal remedies without directly prescribing them for medicinal purposes. Such a practice may be interpreted by an FNP as “sometimes” recommending herbal remedies to their patients. This speculation is somewhat disconcerting as it still presupposes that some FNPs are encouraging their patients to explore the use of herbal remedies without the FNP having any self-rated knowledge about herbal remedies.

Spearman’s rank order correlation test exhibited a modest coefficient, (.46511, $p=.0000$), demonstrating a moderate relationship between the respondents’ self-reported levels of knowledge of herbal remedies and the frequency of recommending herbal remedies. After squaring the coefficient, 21.6 % of the variance between the FNPs’ knowledge of herbal remedies and the frequency of recommending herbal remedies is accounted for. The remaining 78.4 % of the variance must be attributed to other factors.

Speculation as to what other factors are responsible for the variance can be numerous. For example, what role does the desire of FNPs to have more “natural” and “holistic” remedies play in the frequency of prescribing herbal remedies? This question was not investigated. The fact that herbal remedies are generally less expensive than prescriptive pharmaceuticals, was also not investigated. Nor was having an examination of how the presence of a collaborating physician might impact the herbal recommending behaviors of nurse practitioners. In short, there are probably many factors which account for FNPs’ frequency of recommending herbal remedies. However, investigation into these factors was beyond the scope of this study.

Limitations

Because the majority of the study respondents identified as family nurse practitioners, the study results are not generalizable to the overall population of nurse practitioners. Additionally, even though there was a large number of family nurse practitioner respondents, generalizability of the sample to this specialty group should be done with discrimination. This is because the sample was drawn from the American Academy of Nurse Practitioners. Although this organization represents a national membership, (and the participants for this study were drawn from a randomized selection of that membership), it may not be representative of all family nurse practitioners nationwide, as membership in the Academy is voluntary. The very nature of voluntary membership in any organization speaks of the self-interest of its members and therefore, a selected group of participants.

Other limitations of the study are related to the study instrument and its’ requirement for respondents to self-report their responses. First of all, the survey for this

study was new. Validity testing was limited and reliability testing was not performed. Additionally, although it is assumed that the respondents answered truthfully, this assumption cannot be tested or verified. Further it is conceivable that respondents misread or misinterpreted some of the questions contained in the survey.

Conclusions

Results of this study suggest that FNPs are engaged in patient care practices that utilize herbal remedies. Most respondents indicated that they at least sometimes recommend herbal remedies to their patients. This result is much higher than that found by McGraw in 1994, thereby suggesting that the number of NPs who recommend herbal remedies is increasing. However, this comparison must be viewed with caution as McGraw's sample did not contain as many FNPs as did this study. Furthermore, a large majority of respondents replied that they felt herbal remedies were an important part of their patients' self-care practices. From these two results, the frequency of recommending herbs and the belief that herbal remedies are an important part of their patients' self-care practices, it has been deduced that FNPs are recommending herbal remedies to meet the therapeutic self-care demands of their patients.

Results of the study also indicate that the majority of FNPs at least sometimes ask their patients about herbal remedies in their health histories and at least sometimes ask their patients where they learn about and where they acquire herbal remedies. From these results it can be concluded that FNPs are evaluating the self-care practices of their patients who utilize herbal remedies inconsistently. These findings are especially important given that the large number of Americans who utilize alternative therapies and

the understanding that most do not inform their health care provider about their use of herbal remedies (Eisenberg, et.al., 1993; McGregor, 1996).

A majority of FNPs indicated that they at least sometimes teach their patients about where to acquire and how to safely use herbal remedies. Given these results, it can be concluded that a lack of consist information from FNPs may make it difficult for patients who are utilizing herbal remedies to act as their own self-care agency.

Additionally, it was observed that while many FNPs recommend herbal remedies, they do teach on a compatible basis the safe acquisition or use of such remedies. This finding suggests that many patients may be utilizing herbal remedies without appropriate information concerning their safe use or acquisition, thereby being lured into a false sense of security secondary to the belief of the herb's inherent safety. It was speculated that one reason FNPs may recommend herbal remedies more often than they teach about them is due to the FNPs' lack of information related to the safe acquisition and utilization of herbal medicines.

Most FNPs affirmed that they have at least some knowledge of the safe acquisition of herbal remedies. Results indicated that the majority at least sometimes recommend standardized, commercially prepared herbal remedies to their patients, and subsequently, never recommend growing or harvesting herbs for medicinal use. However, results where not as affirming when it comes to the safe use of herbal remedies.

While a large majority of FNPs at least sometimes incorporate patients' herbal use into the treatment plan and consider patient's herbal remedies while prescribing medications, a majority conversely affirmed that they consider herbal remedies at least

sometimes, safe during pregnancy and for children. Along parallel lines, a majority also sometimes felt herbs were safer than manufactured drugs. From these results it is indicated that FNPs only partially demonstrate a safe knowledge of use of herbal remedy use.

Concerning how FNPs' gained their knowledge about herbal remedies, it was concluded that they do so in a variety of ways. Some frequently reported methods of learning which were neither professional or formalized, were the FNP's personal experiences or family traditions. However, learning from an expert, such as an herbalist, was the least reported method of gaining knowledge. Therefore to understand how FNPs consider informal methods of learning as sources for knowledge in regard to herbal remedies, Dorothea Orem's theory of nursing was used. Based upon her theory, it was inferred that nurses, like patients, are influenced by a number of basic conditioning factors which include their personal, family and cultural experiences.

For purposes of this study, however, investigation revealed there was no association between the basic conditioning factors of age, religion, NP education, practice location, practice setting, years of NP practice and the frequency of recommending herbal remedies. Moreover, there was no association between NP education, practice location, practice setting and years of NP practice and the frequency of recommending herbal remedies. However, those who identified as Hispanic were more likely to recommend herbal remedies than any other racial group. Nonetheless, categorical conclusions along racial lines were deemed inappropriate given the lack of information concerning the respondents' cultural identification and the small number of non-Caucasian respondents.

Results also indicated that there was no significant association between gender, national certification and prescriptive authority, and the frequency of prescribing herbal remedies. Concerning prescriptive authority it was concluded that this result may be related to the large number of respondents who reported being in practice less than two years. It was suggested that as this subgroup gained more experience and autonomy, that prescriptive behaviors exhibited by this subgroup may change.

Concerning the association of how FNP's learn about herbal remedies, it was indicated that those who learned from intuition, herbalists, other NPs, and their patients were not more likely to recommend herbal remedies to their patients. Those who learned from personal experiences, scientific journals, books, and classes/seminar were more likely to recommend herbal remedies. From these results it was concluded that FNP's recommend herbal remedies based upon a variety of inconsistent formal and informal learning methods. However, since the methods of learning were not quantified in order of importance it is not clear which methods are more important in relationship to recommending them. As a result, it is not clear how much, and what type of knowledge is learned from each method.

Additional analysis revealed that as FNP's level of self-reported knowledge increased, so did their frequency of recommending herbal remedies and the mean number of herbs they recommended. However, a significant number of respondents reported that they had no self-knowledge of herbal remedies but, were at least sometimes, recommending herbal remedies to their patients. Regardless of speculation concerning the possible explanation for this practice, it was concluded that some FNP's are

recommending the use of herbal remedies without having any self-rated, accurate knowledge about herbal remedies.

Final analysis revealed that there was a modest association between the respondents' self-reported levels of knowledge of herbal remedies and the frequency of recommending them. From this modest relationship it was concluded that other factors, unrelated to knowledge, accounted for the majority of variance as related to the frequency of recommending herbal remedies.

Implications for Nursing

The results of this study suggest that the use of herbal remedies is indeed occurring in the patient care practices of family nurse practitioners. Further, FNPs believe that the use of herbal remedies is an important part of the patient's self care practices. However, the study results reveal that the respondents are at best, inconsistently performing practice behaviors which will ensure the safe use of herbal remedies. Given the potential pharmacological properties that some herbal remedies possess, it seems prudent that nurses in advanced practice roles must develop practice guidelines which ensure the safe use of herbal remedies in patient care practices. At a minimum, these guidelines need to promote the consistent questioning of patients concerning their herbal use in the health history. Additionally guidelines must address the requirements for recommending herbal remedies. In the very least, nurse practitioners must be familiar with the herb, its effects, its potential side effects, precautions and interactions (in much of the same way she/he is required when prescribing an over-the-counter medication or prescription drug) when recommending or

promoting its use to patients. Furthermore, nurse practitioners, as a profession, need to actively promote the research and development of formal professional knowledge concerning herbal remedies and their use.

Only a small percentage of respondents reported learning about herbal remedies in their program of study. As nurse practitioner programs prepare nurses to take on advanced practice roles, including the prescription of medications to treat patients' illnesses, this environment serves as the most appropriate place to formally learn about herbal remedies. Indeed, the study results suggest that FNP's who learn about herbal remedies in their NP program are more likely to recommend them. At a minimum, curriculums should formally include: consistent assessment of inclusion of herbal remedies in the patient health histories, safe acquisition, safe use, where to find information on herbal remedies, and how to critically evaluate information on herbal remedies. Additionally, NP programs should encourage nurse researchers to formally investigate the use, effectiveness, and patient care practices concerning herbal remedies.

To conclude, it will be advantageous for NP's and nurse practitioner programs to begin developing standards for practice, research and education concerning the use of herbal remedies in patient care practices. Not only does it seem prudent, it seems necessary for safe practice. As the use of unregulated, pharmacologically active substances increases, so do the chances of wide spread patient and nurse practitioner uses and abuses of herbal substances. Until formal practice and educational guidelines are developed, nurse practitioners are inadvertently given the message, as many lay individuals still believe, that herbal remedies are natural, holistic, relatively harmless substance that require little knowledge about them to use them safely. Such an

inadvertent message is unsafe and ultimately may prove very dangerous to the nurse practitioner's patients and professional practice.

Recommendations for Further Research

From the results of this study it is clear that family nurse practitioners are using herbal remedies in their patient care practices. Additional research is needed to investigate the inclusion of herbal remedies in the patient care practices of other nurse practitioner specialties. To accomplish this, it would also be beneficial to utilize a different sampling source of nurse practitioners in the United States. Such a sampling could be accomplished by soliciting information from each state's Board of Nursing.

Another area of research should focus upon investigation of different curricula in nurse practitioner programs as their content relates to the use of herbal remedies. Investigation should include the types of knowledge being taught and the best ways in which to teach standardized information to nurse practitioners about herbal remedies.

There is also a need for deeper inquiry into the motivations and reasons nurse practitioners utilize herbal remedies in their patient care practices. For instance, inquiry into the type of personal experiences that influence nurse practitioners to utilize herbal remedies may be of importance. Further investigation into the beliefs that motivate NPs to utilize herbal remedies, such as the belief that herbs are more natural and safer than prescription medications, would be equally beneficial toward understanding the practice of nurse practitioners.

Inquiry into the types of diseases or conditions that nurse practitioners are seeking to prevent or treat by recommending herbal remedies, should also be studied.

Understanding the conditions under which nurse practitioners are recommending herbal

remedies appears fundamental to developing educational programs and practice guidelines concerning their use.

Finally, nurse researchers should focus on the investigation of the use of herbal remedies by their patients. Little is known about the side effect herbs have on patients; the perceptions users have about intended results herbs are supposed to have; the patient's willingness to share with their nurse practitioner's their specific herbal use; or the influence of the patient upon the nurse practitioner to recommend herbal remedies.

APPENDIX A

COVER LETTER AND SURVEY



March 10, 1998

Dear Nurse Practitioner,

You have been randomly chosen from the American Academy of Nurse Practitioners membership list to participate in a research study of the inclusion of herbal remedies in the patient care practices of NPs. It would be appreciated if you could take about 10 minutes to complete the enclosed questionnaire. Please return the survey, in the provided stamped for return envelope, by April 7, 1998.

As you are probably aware, the use of herbal remedies by the general public has increased tremendously in the last several years. As the use of herbal preparations by the general public increases so does the likelihood that nurse practitioners are seeing these individuals in practice situations. However, little is known how nurse practitioners respond to their patients who utilize herbal preparations.

There are no known risks to this study. Your participation and return of the questionnaire is considered your consent to participate. Please be assured that complete confidentiality will be maintained.

Thank you for participating in this research. If you would like a summary of the findings once the study is completed, you may indicate so by completing the last page and returning it with your survey. If you have any questions concerning this research or your rights as a participant, please call: Margaret Louis, Ph.D., R.N., at (702) 895-3812 or the Office of Sponsored Programs, at (702) 895-1357.

Sincerely,

A handwritten signature in cursive script, reading "Diane R. Stricker".

Diane R. Stricker, R.N., B.S.N., M.S.W.
FNP student, Department of Nursing
University of Nevada, Las Vegas

Enclosures:

Survey
Prepaid Envelope

Department of Nursing
4505 Maryland Parkway • Box 453018 • Las Vegas, Nevada 89154-3018
(702) 895-3360 • FAX (702) 895-4807

THE INCLUSION OF HERBAL REMEDIES IN THE PATIENT CARE PRACTICES OF NURSE PRACTITIONERS

I. General Information related to the study.

Gender:

☐ Female
☐ Male

Specialization: (Your training)

☐ Adult NP
☐ Family NP
☐ Women's Health NP
☐ Pediatric NP
☐ Geriatric NP
☐ Other: _____

Age:

☐ 20-25
☐ 26-35
☐ 36-45
☐ 46-55
☐ 56 or older

Prescriptive Authority:

☐ Autonomous
☐ Collaborative

National Certification:

☐ Yes
☐ No

Practice

Setting: (your primary place of practice)

☐ E.D. or Urgent Care
☐ Free Standing Primary Care
☐ Health Department
☐ HMO
☐ Hospital (acute care)
☐ Outpatient Clinic
☐ Private practice
☐ Other _____

Practice location:

☐ Urban
☐ Small town
☐ Rural

Religion:

☐ Catholic
☐ Jewish
☐ Native American
☐ New Age
☐ No Religious preference
☐ Protestant
☐ Other _____

NP Education : (Check all that apply)

☐ Certificate program
☐ Master's program

Years of NP practice:

☐ 0-2
☐ 3-5
☐ 5-10
☐ 11 or greater

Race:

☐ African-American
☐ American Indian
☐ Asian
☐ Caucasian
☐ Hispanic
☐ Other _____

II. Please mark all the herbal remedies that you have recommended or used in your practice in the last 12 months.

Definition: Herbal remedies are **plants** in various forms (**teas, juice, powder, capsules, oils, tinctures, raw, cooked, partial or whole plants**) used to treat or prevent disease (**Does not include prescription or over-the-counter drugs**).

- | | | |
|--------------------------|--------------------------|-------------------|
| 1 ____ Aloe vera | 19 ____ Licorice | 37 ____ Flax seed |
| 2 ____ Sheppards purse | 20 ____ Clove | 38 ____ Turmeric |
| 3 ____ Juniper | 21 ____ Valerian | 39 ____ Ginkgo |
| 4 ____ Peppermint | 22 ____ White Willow | 40 ____ Kudza |
| 5 ____ Garlic | 23 ____ Donquai | 41 ____ Feverfew |
| 6 ____ Eucalyptus | 24 ____ Goldenseal | 42 ____ Celery |
| 7 ____ Rose hips | 25 ____ Olive | 43 ____ Anise |
| 8 ____ Parsley | 26 ____ Cranberry | 44 ____ Psyllium |
| 9 ____ Alfalfa | 27 ____ Milk Thistle | 45 ____ Senna |
| 10 ____ Papaya | 28 ____ Apricot | 46 ____ Sassafras |
| 11 ____ Slippery Elm | 29 ____ Saw Palmentto | 47 ____ Cherry |
| 12 ____ Ginger | 30 ____ Kava Kava | 48 ____ Cayenne |
| 13 ____ Evening primrose | 31 ____ St. John's Wart | 49 ____ Comfrey |
| 14 ____ Witch Hazel | 32 ____ Pygcnogenol | 50 ____ Fennel |
| 15 ____ Chamomile | 33 ____ Grapefruit fiber | 51 ____ Skullcap |
| 16 ____ Raspberry | 34 ____ Dandelion | 52 ____ Ginseng |
| 17 ____ Lemon Grass | 35 ____ Echinacea | 53 ____ Sage |
| 18 ____ Kelp | 36 ____ Ephedra | |
- 54 ____ Herbal combinations (prepared to target specific systems or symptoms such as liver, kidney, depression, concentration or energy boost).
- 55 ____ None of the above

III. Please Circle the answer which most applies.

Definition: Herbal remedies are plants in various forms used to treat or prevent disease. (Does not include prescription or over-the counter drugs or vitamins).

	Never	Sometimes	Frequently	Always
1. In the last 12 months , I have recommended herbal remedies to my patients.	0	1	2	3
2. I ask my patients about herbal remedies in their health history.	0	1	2	3
3. I discourage my patients from using herbal remedies for themselves or their children.	0	1	2	3
4. I ask my patients where they gain information about herbal remedies.	0	1	2	3
5. I ask my patients where they acquire herbal remedies.	0	1	2	3
6. I teach my patients how to use herbal remedies.	0	1	2	3
7. I teach my patients where to acquire herbal remedies.	0	1	2	3
8. I believe the use of herbal remedies is an important part of my patient's self-care.	0	1	2	3
9. I incorporate my patient's herbal remedies in their treatment plan.	0	1	2	3

	Never	Sometimes	Frequently	Always
10. I consider herbal remedies to be safe for pregnant women.	0	1	2	3
11. I consider herbal remedies to be safer than manufactured drugs.	0	1	2	3
12. I consider herbal remedies to be safe for children.	0	1	2	3
13. I recommend standardized, commercially prepared herbal preparations.	0	1	2	3
14. I recommend growing or harvesting herbs for medicinal use.	0	1	2	3
15. When prescribing medications, I consider the herbal remedies my patients are using.	0	1	2	3

IV. Please mark all that apply.

1. When it comes to my knowledge concerning herbal remedies, I consider myself to have:

- ☐ No knowledge
- ☐ A little knowledge
- ☐ Moderate knowledge
- ☐ A lot of knowledge
- ☐ Expert knowledge

Please mark all that apply.

2. I've gained knowledge about herbal remedies from:

- | | |
|--|---|
| <input type="checkbox"/> No knowledge | <input type="checkbox"/> Personal experiences |
| <input type="checkbox"/> My family tradition | <input type="checkbox"/> NP program |
| <input type="checkbox"/> Scientific journals | <input type="checkbox"/> Intuition |
| <input type="checkbox"/> Holistic Health magazines | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Books | |
| <input type="checkbox"/> Classes/seminars | |

APPENDIX B

RESEARCH WITH CORRESPONDING

SURVEY QUESTIONS

Research questions with corresponding survey questions.

1. Are nurse practitioners evaluating the self-care practices of their patients who utilize herbal remedies?

	Never	Sometimes	Frequently	Always
Part III.				
2. I ask my patients about herbal Remedies in their health history.	0	1	2	3
4. I ask my patients where they gain information about herbal remedies.	0	1	2	3
7. I ask my patients where they acquire herbal remedies.	0	1	2	3

2. Are nurse practitioners recommending herbal remedies to meet the therapeutic self-care demands of their patients?

Part II. A list of herbs NP's have recommended in the last 12 months.

	Never	Sometimes	Frequently	Always
Part III.				
1. In the last 12 months, I have recommended herbal remedies to my patients.	0	1	2	3
8. I believe the use of herbal remedies is an important part of my patient's? self-care.	0	1	2	3

3. Do nurse practitioners educate patients about acquisition and utilization of herbal remedies, so they may act as their own self-care agency?

	Never	Sometimes	Frequently	Always
Part III.				
6. I teach my patients how to use herbal remedies.	0	1	2	3
7. I teach my patients where to acquire herbal remedies.	0	1	2	3

4. Do nurse practitioners, as nursing agencies, have knowledge about the safe acquisition of herbal remedies?

	Never	Sometimes	Frequently	Always
Part III				
13. I recommend standardized, commercially prepared herbal preparations.	0	1	2	3
14. I recommend growing or harvesting herbs for medicinal use.	0	1	2	3

5. Do nurse practitioners, as nursing agencies, have knowledge about the safe use of herbal remedies?

	Never	Sometimes	Frequently	Always
Part III.				
9. I incorporate my patient's herbal remedies in their treatment plan.	0	1	2	3
10. I consider herbal remedies to be safe for pregnant women.	0	1	2	3
11. I consider herbal remedies to be safer than manufactured drugs.	0	1	2	3
12. I consider herbal remedies to be safe for children.	0	1	2	3
15. When prescribing medications, I consider the herbal remedies my patients are using.	0	1	2	3

6. How do nurse practitioners as nursing agencies acquire knowledge of herbal remedies?

Part IV.

1. When it comes to my knowledge concerning herbal remedies, I consider myself to have:

- _____ No Knowledge
- _____ A little knowledge
- _____ Moderate knowledge
- _____ A lot of knowledge
- _____ Expert knowledge

2. I've gained knowledge about herbal remedies from:

- _____ No knowledge
- _____ My family tradition
- _____ Scientific journals
- _____ Holistic health magazines
- _____ Classes/seminars
- _____ Personal experiences
- _____ NP program
- _____ Intuition
- _____ Books
- _____ Other: _____

7. What basis conditioning factors of nurse practitioners are associated with the frequency of recommending herbal remedies to patients?

Part I.

Demographic information and basic conditioning factors: age, geographical location, specialization, practice setting, religion, race and how NPs acquired knowledge of herbal remedies.

Part IV.

16. I've gained knowledge about herbal remedies from:

- ☐ No knowledge
- ☐ My family tradition
- ☐ Scientific journals
- ☐ Holistic health magazines
- ☐ Classes/seminars
- ☐ Personal experiences
- ☐ NP program
- ☐ Intuition
- ☐ Books
- ☐ Other: _____

Part III.

1. In the last 12 months, I have recommended herbal remedies to my patients.

Never	Sometimes	Frequently	Always
0	1	2	3

APPENDIX C

HUMAN SUBJECTS RIGHTS



23 January 1998

Diane R. Stricker, M.S.W., R.N.
Dept of Nursing
University, Las Vegas
Las Vegas NV 89154

Dear Ms. Stricker:

The Department of Nursing Human Subjects Rights Committee met and approved your proposal "The inclusion of herbal remedies in the patient care practices of nurse practitioners". You may now take your proposal to the University Office of Sponsored Programs for their consideration. We suggest you request an exempt status for your project.

You have a study that should result in useful information for nursing. The Committee wishes you well in completing it. If any of the above is not clear or you wish to discuss any of the points please do not hesitate to call myself or any of the other committee members.

We wish you well in completing your study and are looking forward to hearing about your findings.

If you make any major change in your project please notify the Committee.

Sincerely,

A handwritten signature in cursive script that reads "Susan Kowalski".

Susan Kowalski, RN PhD
Acting Chairperson
Human Subjects Rights Committee
Department of Nursing, UNLV
CC: Margaret Louis, RN

Department of Nursing
4505 Maryland Parkway • Box 453018 • Las Vegas, Nevada 89154-3018
(702) 895-3360 • FAX (702) 895-4807



DATE: January 23, 1998

TO: Diane R. Stricker
M/S 3018 (NUR)

FROM: *W. E. Schulze*
Dr. William E. Schulze, Director
Office of Sponsored Programs (X1357)

RE: Status of Human Subject Protocol Entitled:
"The Inclusion of Herbal Remedies in the Patient
Care Practices of Nurse Practitioners"

OSP #501s0198-148e

The protocol for the project referenced above has been reviewed by the Office of Sponsored Programs and it has been determined that it meets the criteria for exemption from full review by the UNLV human subjects Institutional Review Board. This protocol is approved for a period of one year from the date of this notification and work on the project may.

Should the use of human subjects described in this protocol continue beyond a year from the date of this notification, it will be necessary to request an extension.

If you have any questions regarding this information, please contact Marsha Green in the Office of Sponsored Programs at 895-1357.

cc: M. Louis (NUR-3018)
OSP File

Office of Sponsored Programs
4505 Maryland Parkway • Box 451037 • Las Vegas, Nevada 89154-1037
(702) 895-1357 • FAX (702) 895-4242

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VITA

**Graduate College
University of Nevada, Las Vegas**

Diane R. Stricker

**Local Address:
Las Vegas, NV 89104**

Degrees:
Associate of Arts, 1980
Phoenix College

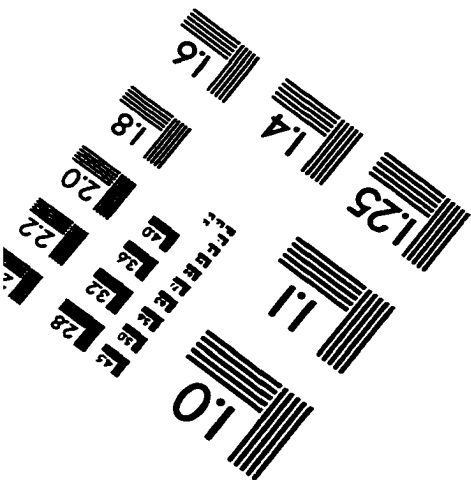
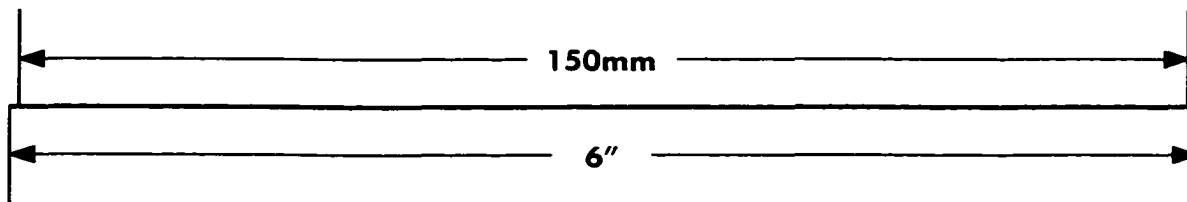
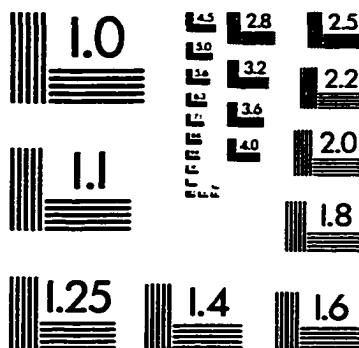
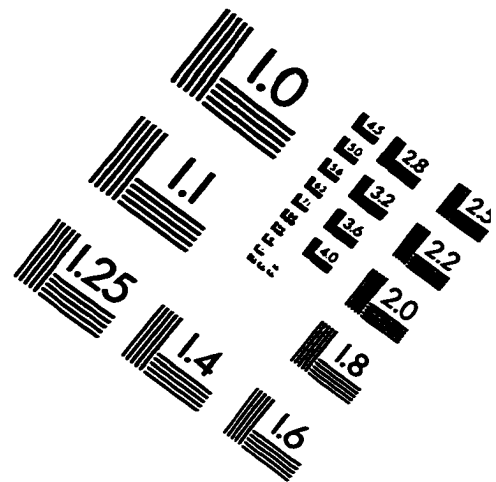
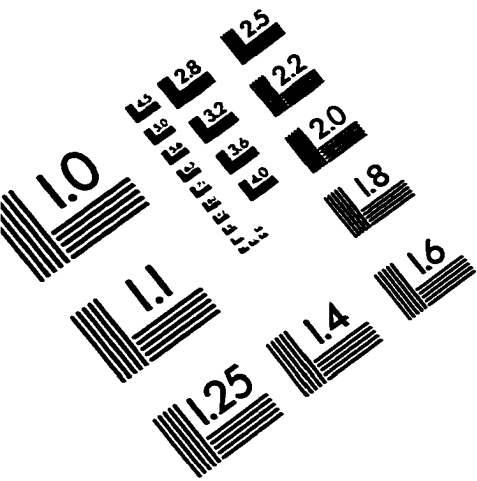
Bachelor of Science in Nursing, 1985
Arizona State University

Master of Social Work, 1990
Arizona State University

Thesis Title: The Inclusion of Herbal Remedies in the Patient Care Practices of Nurse Practitioners.

Thesis Examination Committee:
Chairperson, Margaret Louis, R.N., Ph.D.
Committee Member, Rosemary Witt, R.N., Ph.D.
Committee Member, Patricia T. Alpert, R.N.-C., P.N.P., F.N.P., M.S.N., M.P.H.
Graduate Faculty Representative, Shirley Emerson, Ph.D.

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