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From 'Quackery to Mainstream': An Exploratory Study of News Media Framing During the Diffusion of Acupuncture, 1968-2002, using Bibliometric Counts and Computer-assisted Content Analysis

Gayla Kirksey Owen
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I am submitting herewith a thesis written by Gayla Kirksey Owen entitled "From 'Quackery to Mainstream': An Exploratory Study of News Media Framing During the Diffusion of Acupuncture, 1968-2002, using Bibliometric Counts and Computer-assisted Content Analysis." I have examined the final electronic copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Communication.

Bonnie P. Riechert, Major Professor

We have read this thesis and recommend its acceptance:

Candace White, Michael Betz, Ben Bates

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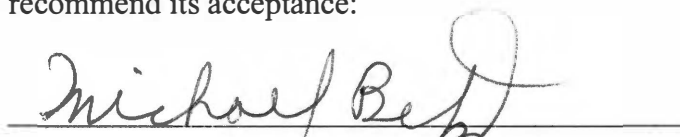
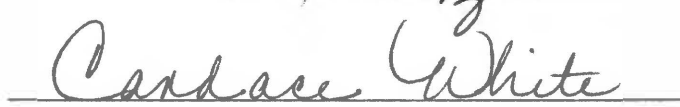
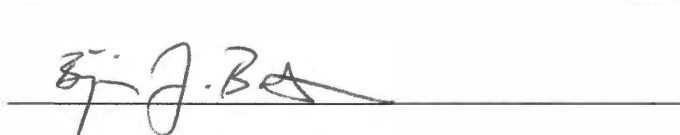
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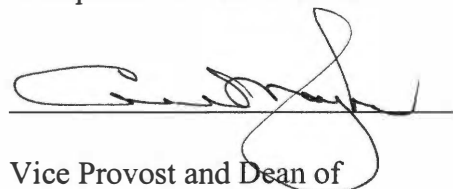
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Acceptance for the Council



Vice Provost and Dean of
Graduate Studies

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An Exploratory Study of News Media Framing
During the Diffusion of Acupuncture, 1968-2002,
using Bibliometric Counts and Computer-assisted Content Analysis**

A Thesis
Presented for the
Master of Science Degree
The University of Tennessee, Knoxville

Gayla Kirksey Owen
May 2004

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DEDICATION

I dedicate this thesis to my husband, Bill, who values education as much as I and who supported me in many ways while I earned this degree. It is also dedicated to the many people throughout my life who have believed in me: my parents, my grandparents, my stepmother, my sisters, my uncles and my teachers, especially Joyce Morrison at the University of Memphis. It is also dedicated to my daughter Haley who motivates me and gives so much meaning to my life.

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I also want to acknowledge and thank my chairperson, Dr. Riechert, for the extensive work she put into developing the method of computer-assisted content analysis used in this study. My appreciation also goes out to Mark Miller for developing the software used in this method, VBPro and VBMap.

Finally, I would like to thank all of the people who helped care for my daughter while I worked on this thesis. They say it takes a village to raise a child. My daughter's wonderful village includes my husband, the staff at Nature's Way Montessori School, Dr. Kerri Martin and Dr. Paul Frymier, Kent Faller, Charles and Mariam Lambrecht, Karen Noggle Perrin and Deborah Davis Carroll.

ABSTRACT

This exploratory study examines how the news media coverage of acupuncture changed during the first three and one-half decades of diffusion in the United States. It specifically looks at amount of coverage and framing. In doing so, this study is one of the few to date to examine framing during the diffusion process. This study compares changes in news media coverage to major milestones in diffusion in an attempt to determine if media lead or follow in the diffusion of an innovation at the societal level.

Acupuncture was introduced to mainstream American culture in the 1970s. This study examines its diffusion at the macro, or societal, level of diffusion using a longitudinal approach over a 35-year period. The research methods used are bibliometric counts, computer-assisted content analysis, cluster analysis, and interpretative analysis. Research focuses on the national print news media with the bibliometric counts involving the *New York Times*, medical journals, and *The Reader's Guide to Periodical Literature*, and framing analysis involving *The New York Times*, *Newsweek*, and the *Washington Post*.

This study concluded that both the amount of coverage and framing of acupuncture changed significantly over a 35-year period and that the media sometimes led and sometimes followed in the diffusion process. There were two significant peaks in amount of coverage over the 35 years. The first and largest occurred during the early 1970s and began with the “trigger event” of *New York Times* columnist James Reston receiving a successful postoperative acupuncture treatment while traveling in China with Kissinger. It appears that this “trigger event” set the media agenda in the 1970s, and that the media were instrumental in introducing acupuncture to the American public. It also appears that the media helped to set the policy agenda for many states, which began taking regulatory and legislative action concerning acupuncture about one year after the peak in coverage began. The second peak in amount of coverage occurred in 1997 when a panel appointed by the

National Institutes of Health (NIH) endorsed acupuncture for some health conditions. In the 1990s, it appears that the media agenda followed the federal government's policy agenda.

Framing changes in news media coverage of acupuncture most often followed milestones of diffusion, and they almost always involved an increase in or sometimes the beginning of a particular frame. The most notable examples follow: The frame involving the study of acupuncture and the frame involving its regulation and legislation both began shortly after Reston's treatment. The "Alternative Medicine" frame began with the establishment of an NIH office to study complementary and alternative medicine. A frame involving the safety, effectiveness, and usefulness of acupuncture increased incrementally after each of the three positive actions by the federal government in the 1990s. There was one notable case when frame changes occurred before a milestone. In the late 1980s and in 1990, the media focused on the use of acupuncture to treat drug addiction. This focus may have possibly had an influence, by increasing acupuncture's credibility with policy elites, on the passage of legislation in 1991, which mandated the establishment of an NIH office to study complementary and alternative medicine.

This study also found that framing evolved in such a way that three phases of media coverage could be identified. The first, which occurred in the 1970s, is the "Introduction" phase. The stories contain themes that might result from the introduction of any innovation and include the subthemes "Uses," "Regulation," and "Caution and Skepticism." The second phase, which occurred in the 1980s, is named "Unmet Need" because the stories involve experimentation with using the innovation, acupuncture, to treat drug addiction, a need that was not being satisfactorily met by Western medicine at the time. The third, the "Legitimacy" phase, occurred in the 1990s. In this phase, the media frame acupuncture with a legitimacy that they did not give to it before. This is attributed to the positive actions toward acupuncture taken by the federal government coupled with the media's tendency

toward supporting the ruling interests of society.

Overall, it appears that the media led the way in introducing acupuncture to mainstream American culture in the 1970s. During this time, it focused on themes logical for any society trying to understand a new innovation: its uses, its regulation, and caution and skepticism toward an unknown. Although there was a small and possibly influential cluster of stories in the late 1980s and in 1990 that focused on the use of acupuncture in addressing the unmet need of treatment for drug addiction, acupuncture was not a significant topic again until 1997 when an NIH panel gave its endorsement. At this time, the media followed the federal government's lead in the diffusion process. The amount of coverage increased and media framing became more positive in response to this legitimizing action by the federal government.

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CHAPTER ONE: INTRODUCTION

How does news media coverage change as an innovation becomes increasingly diffused in a society? In examining this broad question, this study will explore changes in the amount of coverage and in framing by the news media. This study also examines whether changes in news media coverage usually precede or follow major advances in the diffusion process.

In doing so, this will be one of the few studies, thus far, to combine the two communications traditions diffusion of innovation and framing. In an e-mail in April 2003, the father of diffusion theory, Everett Rogers, wrote, "There is very little that I can find on framing and diffusion." However, he did say that his upcoming fifth edition of *Diffusion of Innovation* will be the first edition to include information on framing in the diffusion process. He also forwarded one of his most recent studies, which addresses this topic.

The innovation examined in this study is acupuncture, an innovation which originated from an outside culture, China, and was introduced to this country in the 1970s. Over the past three decades, acupuncture has diffused in this country to the point where the *Wall Street Journal* says it has moved from "quackery to mainstream" (Davis, 2003, p. D3). However, in terms of diffusion of innovation theory, acupuncture would probably still be considered in the early stages of diffusion -- probably in the early adopter phase or possibly at the beginning of the early majority phase (Rogers & Shoemaker, 1971, p. 182). This study will look at the macro, or societal, level of the diffusion of acupuncture. It will examine changes in the amount of coverage and in framing by the national print news media over a 35-year period in which acupuncture was diffusing in the United States.

The diffusion of innovation tradition dates back to 1962 when Rogers combined findings from several fields, including sociology, anthropology, and rural extension work, to develop what he called diffusion theory (Baran & Davis, 1995, p. 171). Elements of the

classic model, laid out in the first of edition of *Diffusion of Innovations* (1962) consist of an idea, practice or object perceived as new; a communication process; a social system; and the time it takes to diffuse throughout the population. An innovation can originate at the individual level or, as in the case of acupuncture in the United States, at the societal level. The diffusion model outlines four steps in the diffusion process: knowledge, persuasion, decision and confirmation.

Adoption of an innovation generally “follows a normal bell-shaped curve when plotted over time on a frequency basis. If the cumulative number of adopters is plotted, the result is an S-shaped curve” (Rogers & Shoemaker, 1971, p. 177). Diffusion theory divides the bell shaped curve into five adopter categories. The first, consisting of 2.5 percent of the population, is called Innovators. The second, with 13.5 percent of the population, is called Early Adopters. The next, with 34 percent, is called Early Majority. The fourth, with 34 percent, is Late Majority. The last adopter category, consists of 16 percent of the population and is called Laggards (Rogers & Shoemaker, 1971).

Researchers have found that some characteristics of an innovation usually result in a slower rate of diffusion. These include a high degree of complexity, in other words, being difficult for social system members to understand, and incompatibility with the prevalent cultural beliefs and values of the social system. An exogenous innovation, such as acupuncture, is one coming from outside the adopting culture and therefore is usually less consistent with sociocultural values and beliefs. Diffusion research has found that such exogenous innovations are usually “not adopted as rapidly” and require the adoption of a “new value system” (Rogers and Shoemaker, 1971, p. 22).

In 1971, Rogers along with F. Floyd Shoemaker, published a book focusing on communications in diffusion of innovations. Examining accumulated research, they concluded that “a combination of mass media and interpersonal communications... is the most effective way” to achieve the diffusion and adoption of a new idea (p. 260).

Researchers found that mass media channels are more effective during the knowledge step, where interpersonal channels are more effective during the subsequent step of persuasion. Also, mass media channels are more important for earlier adopters than for late adopters (Rogers & Shoemaker, 1971).

Almost all research on the communications processes involved in diffusion, to date, have focused on the communication channels. In 1971, Rogers and Shoemaker noted the need for research to move beyond channels and into “message strategies” (p. 265). In 2003, a search of communications literature resulted in few studies involving diffusion and “message strategies” or, as it would might be called today, “framing.” As mentioned above, Rogers says, there is still “very little” research on framing and diffusion (E.M. Roger, personal communication, April 2003).

Framing analysis, the other major research tradition in this study, can be traced back to sociologist Goffman, who coined the term in 1974. Frames are “definitions of social reality” contained in the minds of individuals as well as within a culture (Tuchman, 1976, p. 94). Frames vary according to the culture (Entman, 1993). However, the frames in a culture do not appear as interpretations or frames but as common knowledge or common sense (Kennyamer, 1994).

Predominant paradigms of a culture, such as the Western medical paradigm in the United States, contain many frames. Frames in the news media are intimately intertwined with the predominant paradigms of a culture. Thus, in American culture’s current medical paradigm, a common frame of reference might be to deem only medical doctors (physicians trained in the allopathic tradition) as scientific and capable of delivering effective medical care.

Frames, especially frames provided by the mass media, are an important part in the understanding of social issues and in public discourse and, therefore, in diffusion at the societal level (Andsager & Powers, 1999). Media frames reinforce legitimacy of certain interpretations, such as the Western orthodox model of medicine, over others (Andsager &

Powers, 1999). Such media framing is especially powerful and influential when the subject is unfamiliar to the public, such as acupuncture would have been for most Americans during most of this study's time period (Graber, 1989).

Research has shown that the media tend to use frames supporting the dominant or ruling interests in society (Nomai & Dioisopoulos, 2002). Was this the case with acupuncture? For example, did the media frame acupuncture according to the American Medical Association's definition? One can also think of other ways the media might frame acupuncture: quackery, new-found miracle cure, effective for some conditions, a legal concern, discounted as placebo effect, medieval and mystical.

This study will also consider agenda-setting, looking specifically at media agenda-setting and policy agenda-setting. In attempting to answer the broader question of how changes in media coverage relate to the diffusion process, this study asks who led the way in the diffusion of acupuncture at the macro level, media or elites? As the diffusion of acupuncture advanced from the late 1960s to a point in the late 1990s where the National Institutes of Health (NIH) and the AMA had endorsed acupuncture for certain ailments, did changes in the amount of media coverage and in framing lead or follow? Did media set the policy agenda or did they merely "report what [was] going on..."? (Kingdon, 1995, pp. 58-59)

Several framing studies in recent years have used the longitudinal approach that is used in this study. However, most have used the qualitative method of content analysis. Many researchers, however, have argued that qualitative content analysis is too subjective. For example, Gamson said that such content analysis does not produce "adequate reliability" when searching for "a frame or story line" because it involves too much researcher subjectivity (1989, p. 159). This study will employ computer-assisted content analysis in hopes of addressing such concerns.

Scholars studying the topics of diffusion of innovation, framing, and agenda-setting in the media have suggested several areas for future research that are addressed by this study. In diffusion of innovation theory, Rogers and Shoemaker, in 1971, stated that “the message content carried on diffusion channels has been totally ignored by researchers” (p. 265). As stated above, there is still very little research on diffusion and message content, or framing as it might be called today.

In the area of framing, Reese (2001) says research would benefit from “observations over time to examine emerging frames... and to compare the framing process... with other indicators of social reality” (p. 28). Hertog and McLeod (2001) state that “relating frames to other popular culture phenomena should be an important part of frame studies” (p. 160). Maher gives several suggestions including research that would attempt to answer the following questions: “Does framing of an issue vary across time...?” “What causes this variation?” and “Do major changes in news framing precede major shifts... in policy?” (2001, p. 92).

With regard to agenda-setting, Rogers, Dearing and Chang (1991) advocate more studies using a longitudinal approach “so that its more specific mechanisms can be better understood.”

To answer some of these calls for further research, this study will examine how framing varied over a 35-year period. And, by comparing framing variations to milestones that occurred during the process of acupuncture’s diffusion, it will investigate the framing process in relationship to “other indicators of social reality” (Reese, 2001, p. 28) and “other popular culture phenomena” (Hertog, 2001, p. 160), and it will explore the causes of such variations. These “milestones” are events during the 35 years that represent major advances in acupuncture’s diffusion at a societal level. Some concern policy actions by the government; some of them concern actions taken by the nation’s elite, including leaders in acupuncture circles.

Acupuncture Background

The diffusion of acupuncture in the United States is part of a larger trend in the growing acceptance and use of “complementary and alternative medicine,” otherwise known as CAM. This trend first popped up on the radar screen for many, especially for those in orthodox medicine, in 1998 when David Eisenberg, M.D., and his colleagues at Harvard University published a survey in the *Journal of the American Medical Association*. Their survey of the U.S. population found that the number of Americans using alternative therapies had increased dramatically. Comparing it to an earlier study, the percentage of adults using alternative medicine within the prior year had increased from 34% in 1990 to 42% in 1997. Possibly even more noteworthy is that 84% were “very satisfied with the results;” 87% “would recommend it to others;” and 82% had already seen an M.D. for the same condition with unsatisfactory results” (Betz, 2002; Eisenberg, et al., 1998).

The paradigm or conceptual framework underlying Western orthodox medicine, like any paradigm, is not a true and complete picture of reality. Like anything social, medicine and health care are socially constructed by humans in an attempt to understand and negotiate their world. “Medicine is a human endeavor – shaped by consideration of the humans using and practicing it,” according to Ergil (1996, p. 185). Such considerations can have little to do with curing disease in the “most simple and efficient way and a great deal to do with economics, politics and culture... Our own perspectives on medicine... provide us with ideas of what is normal... for medicine” (p. 185).

The modalities considered complementary and alternative medicine in this country are many and vary from author to author. Depending on who you ask, they include everything from chiropractic to prayer to vitamin therapy to shamanism. Also, its many modalities are at various levels of acceptance and adoption. The narrower topic of acupuncture, however, has one of the longest track records of mass media coverage

and is one of the most accepted and diffused, having been endorsed by both the National Institutes of Health (NIH) and the American Medical Association (AMA).

The Chinese have been developing and practicing acupuncture for more than 2000 years. It is part of a system of healing we now call Traditional Chinese Medicine (TCM), which also includes medicinal herbs, special exercises like t'ai chi chuan, lifestyle and dietary adjustments, and massage. The acupuncture component of TCM involves the inserting of thread-like needles into a patient at specific sites along meridians or channels of qi (pronounced chee). Qi roughly translates into English as "energy" or "vital force" (Milburn, 2001). "Acupuncture works by correcting deficiencies or imbalances of bodily energy, called qi" (Davis, 2002. p. D-3). In this way, acupuncture "regulates and restores the harmonious energetic balance of the body" (American Society of Acupuncturists pamphlet).

Traditional Chinese Medicine is quite different from traditional Western medicine, both in its practice and in conceptual framework. Some differences at the practice level include evaluation of the patient and diagnosis of the cause of disease. Compared to Western medicine, two of the most unusual components of evaluation in TCM are observation of the tongue for color, shape, markings and coating; and taking of the pulse for a description that includes 29 types such as slippery, deep, and soggy. As far as diagnosis, elements such as invasion of wind, heat, anger and excessive sexual activity are regarded as some of the many causes of disease. Therefore, a patient with a Western diagnosis of pneumonia might go to an acupuncturist and receive a diagnosis of invasion of wind and heat obstructing the lung qi.

Marked differences between traditional Western medicine and TCM also exist at the deeper level of conceptual framework. Some of these differences are: mind and body separate vs. mind and body connected; rational reductionism vs. holistic; "disease-fighting focus" vs. "health-building focus" (Betz, 2002, p. 3); and dualism vs. relativism;

Early Chinese immigrants to the United States brought acupuncture with them, but it mainly stayed in the Chinatowns of the new world until the early 1970s (Tummins, 2002). Little about acupuncture is found in the American mass media before then. From 1960 through 1970, there were only two articles about acupuncture in the *New York Times*. *The Reader's Guide to Periodical Literature* references only three stories about acupuncture during that same period. The number of articles jumped to 52 and 19 respectively for the year 1972 alone.

The U.S. mass media became interested in acupuncture in 1971 when they began writing about China in preparation for Nixon's ground-breaking 1992 trip. Then, in July of 1971, while accompanying Secretary of State Henry Kissinger on his preparatory trip to the communist country, *New York Times* columnist James Reston had an acupuncture treatment. The prevailing story is that Reston had surgery performed with the only anesthesia being acupuncture, which was and still is done in China. However, a review of Reston's *New York Times* story shortly afterwards reveals that his appendectomy was performed after a "normal injection of Xylocain and Benzocain, which anesthetized the middle of [his] body" and the pain-relieving acupuncture was administered one day later (Reston, 1971, p. A-1).

Regardless of the details, one of America's leading journalists had received acupuncture and with good results. Interest in acupuncture among the media and elites in this country soared. The number of media stories jumped dramatically, and some states began to pass legislation to legitimize the practice. Nevada was the first in 1973 with California following in 1976. By 1985, fourteen states had laws that licensed, certified or registered nonphysician acupuncturists.

Milestones of Diffusion

Today, acupuncture is one of the “most mainstream of the alternative medicines” (Hoh, 1998, p. 48). Forty-one states have laws allowing for the practice of the approximately 18,000 acupuncturists in the United States, including about 3000 who are medical doctors (Council of Acupuncture and Oriental Medicine; Davis, 2002). The National Institutes of Health (NIH), and even the American Medical Association (AMA), have endorsed acupuncture for certain ailments. Many hospitals offer acupuncture, some insurance companies cover it, and expenses for it can be written off on U.S. income taxes. In December 2002, the *Newsweek* cover photograph was of a woman with acupuncture needles in her forehead, and inside ran a story titled: “Learning from China: Chinese Medicine May Have Much to Teach the West” (Underwood, 2002). *Parade Magazine*, which is distributed to millions of Americans across the nation every week in their Sunday paper, ran a story touting acupuncture in March 2001. The legitimacy of acupuncture has even made it to the smaller city papers. In 2001 and 2002, acupuncture was the subject of a large front-page photograph for the Health Fitness & Science section of the *Knoxville News Sentinel* at least once for each year. In addition, in the last 30 years, there have been almost 500 Western-style studies of acupuncture, with “solid evidence that it’s effective” for certain conditions, according to the *Wall Street Journal* (Davis, 2002, p. D-3).

Over the past 35 years there have been several events or milestones that represent major advances in acupuncture’s macro-level diffusion in this country. The most significant of these milestones, according to David Molony, vice president and spokesperson for the American Association of Oriental Medicine, follow: On June 19, 1971, James Reston, a *New York Times* columnist traveling in China with Secretary of State Kissinger, received an acupuncture treatment for pain following an appendectomy. The second milestone happened in 1982 (exact date unknown), when the National Certification Commission on Acupuncture (NCCA) was formed to create national standards and a national exam.

The third milestone was in 1992, when the NIH established an office for the study of complementary and alternative medicine. It was originally named the Office for the Study of Unconventional Medical Practices. Later, the name was changed to the Office of Alternative Medicine, then to the Office of Complementary and Alternative Medicine, and, in 1999, to the National Center for Complementary and Alternative Medicine. The first meeting of the ad hoc advisory board was on June 17, 1992. The fourth milestone was the FDA's approval of acupuncture needles as medical devices, which happened on March 29, 1996. This action removed them from their list of investigational devices, making them no longer considered experimental. The final milestone in this study happened on November 5, 1997. At that time, an independent panel of scientists convened by the NIH reviewed the existing research on acupuncture issued a consensus statement endorsing acupuncture for certain conditions. These included nausea caused by pregnancy, chemical anesthesia and cancer chemotherapy drugs and pain following dental surgery. The panel also said there was evidence that acupuncture may be effective in other conditions, including stroke, drug addiction and fibromyalgia. These five milestones are summarized in Table 1.

In terms of diffusion of innovation theory, acupuncture was introduced as an exogenous innovation at the macro, or societal, level (McQueen, 1985). As can be seen from the above milestones, significant progress has been made in diffusion at this level. Acupuncture has gained much acceptance and legitimacy in the United States over the past 35 years.

Table 1. Major Advances, or “Milestones” in Acupuncture’s Diffusion in the United States, 1968-2002

YEAR	MILESTONE
1971	<u>Reston Acupuncture Treatment</u> - James Reston, <i>New York Times</i> columnist traveling in China with Secretary of State Kissinger, receives an acupuncture treatment for pain following an appendectomy. (June 19, 1971)
1982	<u>NCCA Formed</u> – The National Certification Commission on Acupuncture (NCCA) is formed to create national standards and a national exam. (exact date unknown)
1992	<u>NIH CAM Office Established</u> - The NIH establishes an office for the study of complementary and alternative medicine. The name originally was the Office for the Study of Unconventional Medical Practices, later changed to the Office of Alternative Medicine, then to the Office of Complementary and Alternative Medicine. In 1999, the office gained the more independent status of “center” and was renamed the National Center for Complementary and Alternative Medicine. (June 17, 1992, was the first meeting of the ad hoc advisory board)
1996	<u>FDA Approves Needles</u> - The FDA approves needles as medical devices, no longer considered experimental. (March 29, 1996)
1997	<u>NIH Panel Endorsement</u> - An NIH-convened panel endorses acupuncture as an effective treatment for certain conditions including for nausea caused by pregnancy, chemical anesthesia and cancer chemotherapy drugs and for pain following dental surgery. It also says there is evidence that it may be effective in other conditions, including stroke, drug addiction and fibromyalgia. (November 5, 1997)

CHAPTER II: LITERATURE REVIEW

This chapter provides a review of scholarly literature related to this study. It includes diffusion of innovation; acupuncture in the mass media; framing and its role in communications research; the theory of agenda-setting as related to communications; and an overview of longitudinal studies.

Diffusion of Innovation

Diffusion of innovation is the study of the process through which innovations spread through a social system (Rogers, 1962). The elements of the classic model of diffusion of innovation, as developed by Everett Rogers, consist of an idea, practice or object perceived as new by an individual, the communication process by which it is spread, a social system, and the time it takes the innovation to diffuse throughout the population. The origin of change can occur at the individual or social system level (Rogers and Shoemaker, 1971).

The effect of an innovation adoption is social change. In their 1971 book, *Communication of Innovations*, Rogers and Shoemaker lay out different types of social change. The innovation of acupuncture in the United States fits into their *selective contact change* category. This happens “when members of a social system are exposed to external influences and adopt or reject a new idea from that source on the basis of their needs” (p. 9).

Communications studies focused on diffusion of innovation have found that “new ideas usually spread from a source to an audience of receivers via a series of sequential transmissions...” (p. 13) There is “a considerable time lag [that] exists from introduction of a new idea to its widespread adoption” (p. 16). For example, it took fifty years for U.S. public schools to adopt the idea of kindergarten in the 1930s and 1940s. (Rogers & Shoemaker, 1971).

Adoption of an innovation generally “follows a normal bell-shaped curve when plotted over time on a frequency basis. If the cumulative number of adopters is plotted, the result is an S-shaped curve” (Rogers & Shoemaker, 1971, p. 177). Diffusion theory divides the bell shaped curve into five adopter categories. The first, consisting of 2.5 percent of the population, is called Innovators. The second, with 13.5 percent of the population, is called Early Adopters. The next, with 34 percent, is called Early Majority. The fourth, with 34 percent, is Late Majority. The last adopter category, consists of 16 percent of the population and is called Laggards (Rogers & Shoemaker, 1971).

One of the characteristics of an innovation is compatibility – the degree to which an innovation is perceived as being consistent with “(1) sociocultural values and beliefs, (2) with previously introduced ideas, or (3) with client needs for innovations” (p. 145). An idea that is not compatible with the prevalent cultural beliefs and values of the social system will not be adopted as rapidly as an innovation that is compatible. The adoption of an incompatible innovation often requires the prior adoption of a new value system (Rogers & Shoemaker, 1971).

Compatibility of an innovation with a previously introduced idea can either increase or decrease its rate of adoption. Preceding ideas are the “main tools with which new ideas are assessed. One cannot deal with an innovation except on the basis of the familiar” (Rogers & Shoemaker, 1971, p. 147). Preceding ideas are a familiar standard with which an innovation can be interpreted (Rogers, 1995).

Complexity is another characteristic of an innovation. “Some innovations are readily understood by most members of a social system; others are not and will be adopted more slowly” (Rogers & Shoemaker, 1971, p. 22).

Diffusion theory conceptualizes four main steps in the adoption process. The first, *knowledge*, “occurs when the individual is exposed to the innovation’s existence and gains some understanding of how it functions.” The second, *persuasion*, “occurs when the

individual forms a favorable or unfavorable attitude towards the innovation.” The third, *decision*, “occurs when the individual engages in activities which lead to a choice to adopt or reject the innovation.” The fourth, *confirmation*, “occurs when the individual seeks reinforcement for the innovation-decision he has made, but he may reverse his previous decision if exposed to conflicting messages” (Rogers & Shoemaker, 1971, p. 25).

Diffusion of Innovation researchers have discovered that “a combination of mass media and interpersonal communication channels is the most effective way of reaching people with new ideas and persuading them to utilize these innovations” (Rogers & Shoemaker, 1971, p. 260). They have found that mass media channels are more important in the knowledge step while interpersonal channels are more important in the persuasion step. Also, mass media channels are “more important than interpersonal channels for earlier adopters than for later adopters” (Rogers & Shoemaker, 1971, p. 259).

Little has been written about framing in the diffusion process, although according to personal communication with Everett Rogers, his upcoming fifth edition of *Diffusion of Innovations* will address the issue. One of the few studies to look at the effect of framing on diffusion was published in 2003 and concerns the diffusion of policy, specifically clean indoor air ordinances in local communities (Rogers, Peterson, & McOwiti). It found that “how a[n] ordinance is framed has an important impact on its adoption or rejection” (p. 21). They also found that “positive and negative champions” were “particularly important in framing the... issue” (p. 17).

Acupuncture in the Mass Media

A search of social science literature revealed only one scholarly study regarding acupuncture in the mass media. The article is an “overview of the flow of information about Chinese medical care into the U.S. during the 70s” (McQueen, 1985, p. 931). The study

was originally presented in 1979 at the annual meeting of the American Anthropological Association, but did not appear in *Social Science and Medicine* until 1985, where it was titled “China’s Impact on American Medicine in the Seventies: A Limited and Preliminary Inquiry” (McQueen, 1985).

Research in the study mainly consisted of searches for articles on acupuncture and Chinese medicine in *The New York Times Index*, *Reader’s Guide to Periodical Literature*, and the *Index Medicus*, an index compiled by the National Institutes of Health containing a “broad spectrum” of academic medical journals. The search spanned from 1969 to 1978. It revealed “a burst of information” in the medical literature from 1973 to 1976 and a similar “burst” in lay publications from 1972 to 1975. These bursts were accounted for by articles about acupuncture as opposed to other aspects of Chinese medicine.

The large number of articles about acupuncture did not continue into the later seventies, however. The number drops so dramatically that the study’s author, McQueen (1985), concludes the “influence of Chinese medical ideas on American orthodox medicine was a short-lived phenomenon... possess[ing] many characteristics of a fad” (p. 931). McQueen (1985) also dismisses Chinese medicine’s effect on U.S. alternative medicine. “It also seems clear that the new ideas from China did not start any major re-evaluation and promotion of indigenous American alternative healing methods” (p. 935).

McQueen (1985) deems the American experience with Chinese medicine in the seventies as “a story of a diffusion of innovation which was not adopted” (p. 934). For the most part, he is looking for adoption by American orthodox physicians. He attributes the failure of adoption to two problems. The first is that the ideas of Chinese medicine were an “idea without context” in the American culture (p. 934). The second is that the idea came into the United States at the population level of diffusion (macro) but never was adopted at the micro level, which McQueen considers to be individual orthodox physicians incorporating it into their practice of medicine.

In 1981, McQueen (1985) wrote an epilogue to his study stating that the same trend continued; very few articles were being published regarding traditional Chinese medicine. However, he acknowledged a new movement of traditional acupuncture in the United States. The first annual conference of the Traditional Acupuncture Foundation was held in early November of 1981, he notes. The group had also founded the *Journal of Traditional Acupuncture*. (Note: another U.S. journal dedicated to Chinese medicine already existed. The *American Journal of Chinese Medicine* was started in 1973 by the Institute for Advanced Research in Asian Science and Medicine.)

Framing

Reality is too complex for humans to understand in its entirety. Instead, we engage in what social scientists call sensemaking. Instead of understanding the entirety of our experience, we *interpret* it based on our expectations, which are formed from past experiences. Sociologist Erving Goffman (1974) and anthropologist-psychologist Gregory Bateson (1972) were first to use the word *frame* to “refer to [this] specific set of expectations that are used” in sensemaking (Baran & Davis, 1995, p. 299; Riechert, 1996; Reese, 2001). According to Goffman, frames are *schemata* that people use to “locate, perceive, identify, and label” reality (1974). “Each person has a frame of reference that helps them to construct meaning of situations” (Thompson, 1998, p. 18). We use frames to “coordinate our actions with others and experience daily existence as having order and meaning” (Baran & Davis, 1995, p. 298).

We actually are capable of changing our framing from moment to moment. However, “most of us maintain the impression that our experiences are quite consistent and routine... by firmly committing ourselves to live in what we experience as the primary or dominant reality” (Baran & Davis, 1995, p. 301). Because we find this reality so

“compelling and desirable,” we work hard to maintain it, such that we end up making “many framing mistakes” (p. 301). An important aspect of framing is that it operates at both the psychological and the sociological level. In sociology, framing is studied to understand the influence it has on society and culture (Koella, 2001). In sociology, “framing refers to the way events and issues are organized and made sense of ...” (Reese, 2001, p. 7).

To facilitate a better understanding of framing, it might be helpful to look at various definitions offered in the literature:

Goffman defined framing as “the organization of experience” (1974, p.11).

Gitlin wrote that “frames are principles of selection, emphasis, and presentation composed of little tacit theories about what exists, what happens, and what matters... We frame reality in order to negotiate it, manage it, comprehend it, and choose appropriate repertoires of cognition and action” (1980, pp. 6-7).

According to Gamson, frames are “a central organizing idea for making sense of relevant events and suggesting what is at issue” (1989, p. 157).

Riechert offered this working definition: “framing is the selective definition or representation of an event, issue, or idea” (1996, p. 5).

Framing and the Mass Media

Human communications, including mass media communications, is guided by framing. Entman notes that “frames reside in the specific properties of the news narrative” and that such frames “encourage those perceiving and thinking about events to develop particular understandings of them...” (1991, p. 7). The frames contained in communications are a “powerful and pervasive force” (Riechert, 1996, p. 5).

One of the first researchers to specifically study framing as it relates to the news media was Tuchman. She explained that framing in the mass media offers the public “definitions of social reality” (1976, p. 94). Kruse (2001) put it a slightly different way: “Mass media do not simply report the news; they construct the news” (p. 68).

One of the ways framing is carried out, Tuchman reported, is through *selection*.

Journalists encounter “a glut of information that must then be winnowed and weeded” (1978, pp. 12-13). Frames “both produce and limit meaning,” through this selection process, she said (1978, p. 209). In addition to selection, Entman points out the function of *salience* in media framing. To frame is to “select some aspect of a perceived reality and make [it] more *salient* (italics added) in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and /or treatment recommendation for the item described” (Entman, 1993, p. 52).

Several researchers have pointed to the utility of framing in news reporting. In dealing with a “glut of information” (Tuchman, 1978, p. 12), frames “enable journalists to process large amounts of information quickly and routinely; to recognize it as information, to assign it cognitive categories, and to package it for efficient relay to their audiences” (Gitlin, 1980, p. 7). With framing, instead of reporting a list of facts, journalists give context to an occurrence (Williams, Shapiro, & Cutbirth, 1982; Hertog & McLeod, 1995). In doing so, “the frame used... determines what available information is relevant (and thereby what is irrelevant)” (Hertog & McLeod, 1995, p. 4).

However, how and why journalists use framing is only one piece of the puzzle. The other necessary component to successful framing is the audience’s internal framing. Frames interact with the audience’s schemata – “categories, scripts or stereotypes [which] connote mentally stored clusters of ideas that guide individuals’ processing of information” (Entman, 1993 p. 53). “The acceptance and sharing of a media frame depends on the understandings the ‘reader’ brings to the text to produce negotiated meaning.” (Reese, 2001, p. 15)

However, this interaction is rarely conscious. On the contrary, it is “implicit” and participants are “unaware” (Gamson, 1985, p. 616), which is partially what makes framing so powerful in mass communications. “Social constructions rarely appear as such to the reader and may be largely unconscious on the part of the writer as well” (Gamson

& Wolfsfeld, 1993, p. 119). Frames do not appear as interpretations; they appear as “transparent descriptions of reality” (p. 119). Thus, Tankard (2001) implores “power of framing comes from its ability to define terms of a debate without the audience realizing it is taking place” (p. 97).

One of the important areas of research by communication scholars is the effects of framing on policy discourse and public opinion. “Framing impacts public understanding and, consequently, policy formation,” write Andsager and Powers (1999, p. 533). They add that the dominant frames journalists bring to news stories reify “the legitimacy of certain interpretations over others” (p. 533). Thus, framing “must be understood as an expression of power” especially in the way it affects citizen’s understanding and recognition of political issues and social problems (Watkins, 2001, p. 86; Entman, 1993; Gamson & Modigliani, 1989). This power is even more pronounced when the subject “concerns unfamiliar matters and there is no easy way to test its accuracy” (Graber, 1989, pp. 146-147). Although “it is possible for the audience to be autonomous in reaching their own decisions... various researchers suggest” that on most matters in the news, the audience is not generally well-informed or cognitively active, and therefore news media framing has a heavy influence on them (Entman, 1993, p. 56).

Of course, journalists don’t invent frames by themselves, but use frames that are held within the culture. They place information into “culturally resonant categories” (Wolfsfel, 1993, p. xiv). These categories or frames, although elusive, “are known to and accepted as common sense or conventional wisdom” (Pan & Kosicki, 1993, p. 57). Moreover, according to several researchers, journalists “tend towards using frames which support the... dominant or ruling interests of society” (Nomai & Dioisopoulos, 2002). The frames provided are “consistent with the standards and expectations of the dominant culture” (Kennamer, 1994, p. 8). Or as Gamson and Wolfsfeld (1993) put it: “The media speak mainstreamease...” One of the reasons for this is that “news routines

prompt journalists to rely on ‘primary definers’ – individuals associated with major social institutions (p. 57).” Routinely using these sources, in effect, reproduces “the dominant field of the ruling ideologies” (Hall et al., 1978, p. 60).

Although persistent and powerful, the cultural frames held by a society and thus used by its journalists are not static – they do evolve. “Frames may be considered as always in the process of gaining or losing organizing value – and are adopted or abandoned accordingly. Thus frames vary at any given time in the number of people who may find them useful and share them” (Reese, 2001, p. 15). Surely, American society’s framing of acupuncture evolved as its use and credibility increased in this country.

This study, unlike many content analyses which look for one dominant frame in each story, will look for several frames in each one. According to Devitt (2002), “a single story may contain different types of frames to depict an individual, topic, or social concern... Several frames may appear in a single news story” (p. 447). Gamson and Modigliani (1987) noted that a news article may even contain frames that conflict, because frames do not influence the construction of whole news stories, but influence elements within the stories.

Health-Policy Formation

The specific area of news media framing of health issues has been studied by a few scholars. The media can have an impact on the “nature of regulation, the course of litigation, or the direction of research and development” concerning health issues (Nelkin, 1989, p. 54). However, complementary and alternative medicine may not receive much help from the media in that “the media tend to reinforce conventional definitions of health problems, and hence the legitimacy of various solutions” (Andsager & Powers, 1999).

Agenda-setting

“The press may not be successful much of the time in telling people *what to think*, but it is stunningly successful in telling its readers *what to think about*.” (Bernard Cohen, 1963, p. 13)

Such is the phrase coined by Cohen in 1963 that is most often connected with the agenda-setting tradition. Agenda-setting is a theory about “the relative attention given by the media, the public, and policymakers to some issues *and not to others*” and the transference of saliency from one to another (Dearing & Rogers, 1996, p. 3; McCombs & Shaw, 1993).

“Agenda-setting offers an explanation of why information about certain issues, and not others issues, is available to the public in a democracy; how public opinion is shaped; and why certain issues are addressed through policy actions while other issues are not”(Dearing & Rogers, 1996, p. 2).

Under the umbrella of agenda-setting research, generally the setting of three types of agendas have been studied: the media agenda, the public agenda, and the policy agenda.

The factors that influence the media agenda were largely ignored in the early of history of agenda-setting research. In recent years, it has received more attention. Researchers have found that the following play the most dominant role in setting the national media agenda: The White House, certain influential media such as the *New York Times*, gatekeepers as news managers and editors, and a spectacular “trigger event” “such as the 1989 Exxon Valdez oil spill in the case of the environment issue” (Dearing & Rogers, 1996, p. 40; Rogers, Dearing & Chang, 1991). To a lesser degree, Congress is also able to set the national media agenda (Goodman, 1994). And, for some issues, the policy agenda

seems to have a direct influence on the media agenda (Rogers & Dearing, 1988).

One of the factors which, surprisingly, has been found to have a relatively unimportant role in setting the media agenda is real-world indicators (Dearing & Rogers, 1996; Rogers, Dearing, & Chang, 1991). Another factor found to play a minor role is scientific research results (Dearing & Rogers, 1996; Rogers, Dearing & Chang, 1991; Walker, 1977). Also, the hypothesis that public agenda establishes the media agenda has received little support (Wimmer & Dominick, 1997, citing Behr & Iyengar, 1985, and Roberts & Bachen, 1981).

Another interesting discovery of media agenda-setting studies is that at any point in time, or over a given period of time, different media give the same relative coverage to the same issues (Dearing & Rogers, 1996).

The earliest studies in agenda-setting history involved research into the degree to which the media sets the public agenda. Many studies over the years have concluded that the public agenda is generally driven by the media agenda in the United States (McCombs & Shaw, 1972; Funkhouser, 1973; Iyengar & Kinder, 1987; Dearing & Rogers, 1996). Recent studies taking a longitudinal approach have found that this happens “through a gradual and incremental process” (Dearing & Rogers, 1996, p. 62).

Policy agenda-setting is more complex than either public agenda or media agenda-setting because it “involves collective political behavior as well as communication behavior” (Dearing & Rogers, 1996, p. 73). Research on the effect of the media on the policy agenda of elite decision makers has produced contradictory results. Some scholars note a direct influence (Rogers, Dearing, & Chang, 1991) while others posit that a direct influence is rare (Kingdon, 1995; Light, 1991). Kingdon (1995) went as far as to say that “the media report what is going on in the government, by and large, rather than having an independent effect on government agendas” (pp. 58-59).

Evidence that the public agenda consistently and directly affects the policy agenda

is also weak. Instead, a “circularity of influence is a consistent finding...” (Dearing & Rogers, 1996, p. 87). In some cases, the media have a direct effect on the policy agenda-setting process. However, more often the media have an “indirect effect through the public agenda or through prepublication information sharing” (Dearing & Rogers, 1996, p. 87). Also, like in media agenda-setting, a *trigger event*, which “serves to crystallize attention and action” often boosts an issue up the policy agenda (Dearing & Rogers, 1996, p. 87).

Longitudinal Studies

Historically, most framing and agenda-setting research has involved the examination of an issue or issues in aggregate during one period in time. In recent years, longitudinal approaches have become more popular. With a longitudinal approach, data are collected from several points over time. Longitudinal research is important in understanding process (Dearing & Rogers, 1996). For example, the process in which an innovation or an issue gets on the elite agenda and results in social or policy change. Following are some studies which have used longitudinal approaches to look at changes in framing or dominant themes over time:

Rogers, Dearing, and Chang (1991) studied the agenda-setting of AIDS in the 1980s. They found the decade’s coverage in the mass media could be divided into four eras based on the dominant theme during that time: initial era, science era, human era, and political era.

Laura Ashley and Beth Olson (1998) looked at news media framing of the women’s movement from 1966 to 1986. They found that the dominate frame did change over time moving from dissension among supporters to the battle between the pro-movement and anti-movement groups to a focus on the work force and on political appointments of women.

Karen Callaghan and Frauke Schnell (2001) studied news media framing of gun control, specifically the Brady Bill and Assault Weapons Ban legislation, from 1988 to 1996. They found that as the policy debate matured, the frame most dominant in most newscasts did not change over time. The largest percentage of newscasts studied in each of three phases had the dominant frame of “culture of violence.” The runner-up frames did change some over time, with “feel-good laws” coming in second during what the researchers called Phase I, “political contest” for Phase II, and “sensible legislation” for Phase III.

Julie L. Andsager and M. Mark Miller (1994) used VBPro and VBMap to look at news media framing of RU-486, the “so-called French abortion pill” from 1982 to 1994. They found three dominant frames in aggregate but no distinct pattern to changes over time.

Suggested Research

Scholars from the areas in the above literature review have suggested many areas and directions for future research. Following are ones that relate to this study.

Diffusion of Innovation

Much research has been conducted on the communications channels involved in spreading the word about an innovation, according to Rogers and Shoemaker (1971). However, they write, “considering the channel variable alone is insufficient to explain behavior of a receiver in the innovation-decision process” (p. 265). Research of message strategy is also needed, they state. Different “message strategies may increase or decrease the effectiveness of a channel” (p. 265). In 1971, they stated that “the message content carried on diffusion channels has been totally ignored by researchers” (p. 265). In 2003, a search of communications literature regarding diffusion of innovation did not result in

any studies on message content, message strategy or framing, which would be considered message strategy. Rogers (2003), in a personal e-mail, confirmed that few studies exist concerning framing in the diffusion process. However, he deems the topic important as judged by his 2003 study (Rogers, Peterson, & McOwiti, 2003) and by his inclusion of framing in diffusion in his upcoming fifth edition of *Diffusion of Innovation*.

Acupuncture in the Mass Media

Queen makes several suggestions for further research. They include a “rigorous” content analysis of the articles, evaluating for several factors including whether they are positive or negative and whether they are “hortatory” or “merely” informative.

Framing

The need for further framing research has been indicated by various scholars including Swenson (1990) who says additional research is needed concerning framing changes and their relationship to social and political changes. Reese (2001) suggests additional research that would compare the framing process “with other indicators of social reality” (p. 28). Reese (2001) also recommends framing research looking at “observations over time to examine emerging frames” (p. 28). Similarly, Gamson (1989) called for research to examine “the relative prominence of given news frames and how this ebbs and flows over time” (p. 160). Hertog and McLeod (2001) state that “relating frames to other popular culture phenomena should be an important part of frame studies” (p. 160). Maher gives several suggestions including research that will attempt to answer the following questions: “Does framing of an issue vary across time...?” “What causes this variation?” and “Do major changes in news framing precede major shifts... in policy?” (2001, p. 92).

Agenda-setting

Rogers and Dearing, both in their book *Agenda-Setting* (1996) and in their study “AIDS in the 1980s...” (1991), advocate more agenda-setting studies using a longitudinal approach “so that its more specific mechanisms can be better understood” (1991, p. 44).

Research Questions

1. How has the number of articles concerning acupuncture in the national print news media and medical journals changed over time?
2. How has the framing of acupuncture in the national print news media changed over time?
3. Do milestones of diffusion precede or follow increases in the number of articles?
4. Do milestones of diffusion precede or follow changes in framing?

CHAPTER THREE: METHODS

This study addresses the research questions by using several analytic techniques. They include bibliometric counts, computer-assisted content analysis, cluster analysis, and interpretative analysis. The computer-assisted content analysis and cluster analysis involved in this study are conducted using VBPro and VBMap, a suite of software programs “developed specifically for analysis of verbatim text in natural language and for multidimensional scaling of concepts” (Riechert, 1996, p. 51). These programs are an efficient, objective, and precise way to extract themes from text.

Bibliometric Count

Research Question One asks:

How has the number of articles concerning acupuncture in the national print media and medical journals changed over time?

To address this question, a bibliometric count was conducted. It consisted of counts of articles about acupuncture from 1968 to 2002, the same period which is analyzed for framing. The beginning year was chosen because it gave three years of coverage before a significant increase in articles in 1971. The later year was chosen because it is the last full year available at the time of this study. A separate count of the articles about acupuncture was conducted for each of the following sources:

- 1) *The New York Times*;
- 2) *The Reader’s Guide to Periodical Literature*, and
- 3) *The Journal of the American Medical Association (JAMA)* and *The New England Journal of Medicine*.

These sources are the same used by McQueen (1985) in his bibliometric count of acupuncture articles conducted in 1979, with exception of the medical journals. McQueen used the articles included in the database *Index Medicus* to represent medical literature published in the United States. However, *Index Medicus* is not available to this researcher. The medical database available, *PubMed*, contains articles from around the world, making it a poor representation of U.S. medical news. Therefore, two of the nation's leading medical journals (Rogers, Dearing & Chang, 1991) were used to represent the mainstream medical literature: *JAMA* and *The New England Journal of Medicine*. The *New York Times*, as the American newspaper "of record" and agenda setter for the mainstream media in the country, represents current news reporting. *The Reader's Guide to Periodical Literature* represents the lay magazines. Also, as a practical matter, all of these sources are available for the whole period under study, 1968 to 2002.

Most of the article counts were taken from searches of databases available from the University of Tennessee Libraries. Counts for *The New York Times* were taken from LexisNexis Academic. The source *New York Times Abstracts* was selected, and a separate search was conducted for each year for articles with "acupuncture" in the headline, lead or terms. In later years, the *NYT Abstracts* includes other publications such as *The Wall Street Journal*. Articles from these other publications were visually identified and excluded from the count.

Counts for *The Reader's Guide to Periodical Literature* were conducted both on- and off-line. For years 1983 to 2002, *The Reader's Guide to Periodical Literature* database was searched separately for each year for articles with "acupuncture" as the subject. For years 1968 to 1982, the books on the shelves at the University of Tennessee John C. Hodges Main Library were searched for articles under the subject heading "Acupuncture."

In PubMed, a separate search was conducted for each journal for each year with the search terms entered as "acupuncture AND JAMA" and "acupuncture AND New England

Journal of Medicine.”

When all three counts were completed, they were plotted as three lines on one graph to show the changes in number of articles from the three sources over time. The total number of articles for each year was also graphed, and the mean and standard deviation for this set of counts was calculated. Lines were drawn on the graph at the level of the mean plus one standard deviation and at the level of the mean plus two standard deviations. Peaks in amount of coverage higher than the mean plus one standard deviation were considered significant.

Computer-Assisted Content Analysis

Research Question Two asks:

How has the framing of acupuncture in the national print news media changed over time?

To address this question, computer-assisted content analysis was utilized. Much frame analysis research employs the traditional qualitative method of content analysis. However, several problems exist with this method. Many researchers agree that traditional qualitative content analysis is too subjective and creates problems with replicability and coding reliability. Gamson (1989) states that qualitative content analysis involves too much researcher subjectivity because “two analysts may see the same text in different ways” (p. 159). Another problem with qualitative content analysis is that it often involves dichotomous coding, that is each story is coded with only one frame. Tankard, Hendrickson, Silberman, Bliss and Ghanem (1991) found that trying to label each news story about abortion as either pro-life or pro-choice was a mistake and too simplistic. Gamson (1989) agrees, saying that news stories can contain several competing frames.

With increased computer capabilities, software is now available that provides

a solution to many of the problems with traditional qualitative content analysis. Such software programs also include these advantages: they make it possible to study larger, and therefore more representative, samples of content; they analyze large amounts of content quickly; and they allow for searches of rare kinds of media content (Riechert, 1996). This study used such software, a suite of programs called VBPro and VBMap. The programs are based on concept mapping, which “is a multidimensional scaling procedure developed for use in computer-assisted analysis of natural language text...” (Riechert, 1996, p. 78). “Concept mapping allows themes to emerge from the actual text as opposed to being developed by the researcher’s typology” (Thompson, 1998, p. 51).

Following are the steps which were taken in conducting the computer-assisted content analysis. The steps are based on those developed by Riechert (1996) and discussed in Miller and Riechert (2001).

Step One: Dates and Publications Chosen

As discussed in the section on bibliometric counts, the beginning year of 1968 was chosen because it allows a few years of analysis before the spike of coverage surrounding Kissinger’s and Nixon’s visits to China respectively in 1971 and 1972. The ending year of 2002 was chosen because it was the last full year available at the time of this study. In choosing publications, the desire was to include regional and local newspapers as well as national news sources, however none were available online as far back as the 1970s. In order to use VBPro, the articles must be in ASCII form. Therefore, it was decided to focus on national media. In choosing specific publications, again, availability was a heavy consideration. Following are the publications which were chosen, the years the study covered for each, the databases from which they were obtained, and the number of articles containing the term “acupuncture”:

<u>Publication</u>	<u>Years</u>	<u>Database Source</u>	<u>Number of articles</u>
1. <i>New York Times</i>	1968 – 1979	ProQuest Historical Newsp.	92
	1980 – 2002	LexisNexis Academic	208
2. <i>Newsweek</i>	1975 – 2002	LexisNexis Academic	19
3. <i>The Washington Post</i>	1977 – 2002	LexisNexis Academic	<u>135</u>
Total			454

Step Two: Obtaining and Preparing Data

The articles obtained from LexisNexis Academic were downloaded as ASCII text files. The earlier *New York Times* articles from ProQuest Historical Newspapers were downloaded as PDF images. The PDF files were taken to the studio in the Digital Media Center at the University of Tennessee Hodges Library. There, SoftScan OmniPage Pro 12 software was utilized to convert each PDF file to an ASCII text file and to spell check and correct mistakes made in the conversion.

Next, all files were scanned for acupuncture content and articles not pertaining to the subject matter or that were duplicates were deleted. Letters to the editor, lists of stories, obituaries, wedding announcements, stories where acupuncture was used figuratively, such as “acupuncture diplomacy” in a foreign relations story, were deleted. During this process, it was observed that there were several stories in which the term “acupuncture” occurred but where acupuncture, the medical treatment, was not a theme or was a very minor one. For example, there were several stories about locations such as cities or countries which, in the description of the place, mentioned acupuncture clinics as part of the scenery. Other such stories included an biographical sketch that mentioned acupuncture in a long list of adventures. To address this issue, the researcher decided to delete stories which did not

contain the term “acupuncture” at least two times. Using the limit of three times was too restrictive in that it would have eliminated several very short stories announcing legislative action on acupuncture. The two-occurrences rule helped to eliminate most stories in which acupuncture was not a major theme. However, it was decided that a few remaining stories where acupuncture was only a very minor theme should also be deleted. These were a Q and A story about Clinton’s Health Care Reform Plan in which part of one question concerned acupuncture – if it would be covered in the plan. Other stories deleted involved three or four about crime investigations where criminals and terrorists used acupuncture clinics as fronts. Another was an update story about a football team which included a rundown of performance, strategy, injured players and, as an aside, mentioned that one of the players had received an acupuncture treatment that day. There were several other sports stories where the topic of acupuncture played a more prominent role. They were not deleted. Also, stories where acupuncture was not *the* major theme, but still a significant one were not deleted. These included many stories about alternative medicine, where acupuncture, along with homeopathy, massage, herbs, etc., was discussed. After deleting the aforementioned stories, the number was reduced from 454 to 194.

Preparing the data for VBPro was the next step. This included assigning all articles an individual case identifier number, cleaning text of certain symbols which can be misinterpreted by VBPro, spell checking, and placing any text to be ignored inside brackets. Also, some names and phrases that frequently appear as abbreviations, were changed to the abbreviations throughout the text. These were the Federal Drug Administration (FDA), the National Institutes of Health (NIH), and complementary and alternative medicine (CAM).

Next, all of the news stories were cut and pasted into one file and were organized chronologically. Finally, the file was formatted using VBPro’s formatting procedure.

Step Three: Analysis of Text

After formatting, VBPro was instructed to create an alphabetical list of all words in the articles along with their frequency – the total number of times the word occurred in the file. Next, a list of all terms was created ranked by their raw frequency. The list also included relative frequencies. This list was inspected for “selection of *substantive* terms that [are] used most *frequently* and that could be considered most *interpretable*” (Riechert, 1996, p. 110). Based on this criteria, up to 125 words may be chosen to submit to subsequent VBPro procedures in order to determine frames. In selecting the terms for analysis, “consideration [needed] be given to whether a term might hold distinctive content or offer discrimination value among competing themes and frames” (Riechert, 1996, p. 116).

The VBPro alphabetize and rank procedures output a list of 13,608 words which occurred in the 194 news stories about acupuncture. From those 13,608 words, a working list of about 400 terms was compiled based on several criteria, including “frequency of occurrence, meaningfulness or substantive interpretability, including absence of ambiguity” (Riechert, 1996, p. 111). In order to more accurately reduce this list of 400 words down to 125, the news stories were visually scanned in an attempt to obtain ideas for themes and frames over the 35-year period. The 400 terms were also entered into VBPro’s coding procedure, which output a list of occurrences of each term for each article. Because the articles were in chronological order, this allowed an observation of which terms appeared more frequently during some time periods and not others. Such differences in occurrence over time were considered important in answering the question about framing changes over time.

Such visual scanning and observation of the coding output allowed the 400-word list to be narrowed to 224 terms. These terms were used to create a VBPro basic list. This list was submitted to VBPro’s search procedure, which output each paragraph containing

one of these terms, with the term preceded and followed by an arrow. For example, the term “needles” appeared as “>needles<”. This allowed for a view of the words in context and thus an assessment for term ambiguity. Some of the terms that appeared in list form to be potentially significant turned out to be too ambiguous in the text to contribute to frame determination. One such term was “hearing,” which in stories dealing with the legislative aspects of acupuncture meant a group of people meeting to hear testimony, but in stories dealing with the use of acupuncture for deafness meant one of the five senses. By utilizing the search procedure, the list of words was narrowed to the 125 terms needed for the next steps of analysis.

Next, VBPro’s coding procedure was utilized to search for the 125 selected terms in all 194 news articles. It output a numeric data file consisting of a row for each case (article in this study), and a column for each selected term. The cells in the data file indicate the number of times the term occurred in that case. This data file was submitted to VBMap to produce term vectors. Term vectors, or eigenvectors, are the coordinates that represent in “... a multidimensional space the relationship of the terms by co-occurrence” (Riechert, 1996, p. 124). In this study, as in most, three coordinates or dimensions were specified.

Step Four: Generation of Dendrogram

In searching for frames in news articles, VBPro and VBMap search for “clusters” – groups of significant words which co-occur frequently together. Several researchers have referred to frames as such. Kruse (2001) writes that “items in the news are not displayed individually but in clusters or packages with specific internal structures” (p. 68). Entman (1991) states “that frames emerge as the presence or absence of certain key words, sources of information, and sentences that form thematic clusters” (p. 7).

The term coordinates were next input into the statistical program SPSS to generate a dendrogram tree diagram. Such a dendrogram provides a type of visual representation of

how the selected terms relate to each other by their co-occurrence in the news articles. The agglomerative hierarchical cluster analysis performed by SPSS began by considering each term as a separate cluster. Next, it combined the terms occurring most closely together as clusters. With each additional pass, the co-occurrence of the terms in the produced cluster becomes weaker. Therefore, because the clusters formed on the first pass are the ones with the strongest co-occurrence, they are considered the primary clusters and the ones used for this study.

Step Five: Identifying Dominant Frames

The resulting dendrogram can be viewed in full in Figure 1 and in detail over three pages in Figure 2. The clusters created on the dendrogram were reviewed. Having obtained an idea of prominent themes and frames by visually scanning the articles previously, the researcher observed that some of the expected frames were not contained in the resulting dendrogram. For example, a significant number of stories in the 1970s concerned state legislative action limiting the practice of acupuncture to licensed physicians or concerned licensing nonphysician acupuncturists. One of the terms, “bill”, which one might expect to be associated with such stories was in a frame with “medical schools” as the only other term. “Licensed” was clustered alone with “demonstration.” “Bills” and “approved” did appear clustered together by themselves. “Legislative” and “legislature” were clustered with “veterinary” and “veterinarian,” probably due to an attempt in the 1990s by veterinarians in Maryland to get legislation passed banning non-veterinarians, such as acupuncturists, from treating animals. To investigate this problem, it was decided that a more thorough reading of the terms in context needed to be conducted. Such a reading revealed that stories dealing with the same theme used similar but different words. For example, some stories about state legislative action on licensing of acupuncturists contained the word “legislature” when the body was called the State Legislature; other stories did not contain

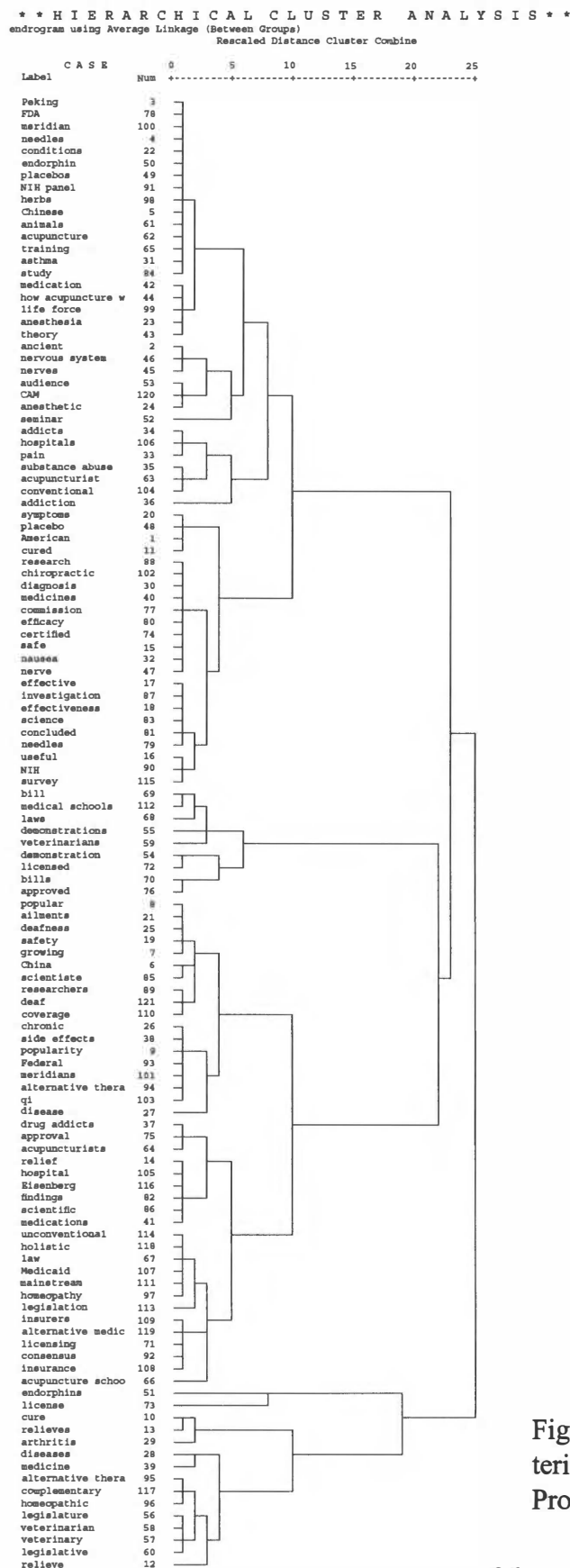


Figure 1. Full View of Original Clustering Dendrogram (the Dendrogram Produced Before Term Changes)

* * H I E R A R C H I C A L C L U S T E R A N A L Y S I S * *

Dendrogram using Average Linkage (Between Groups)

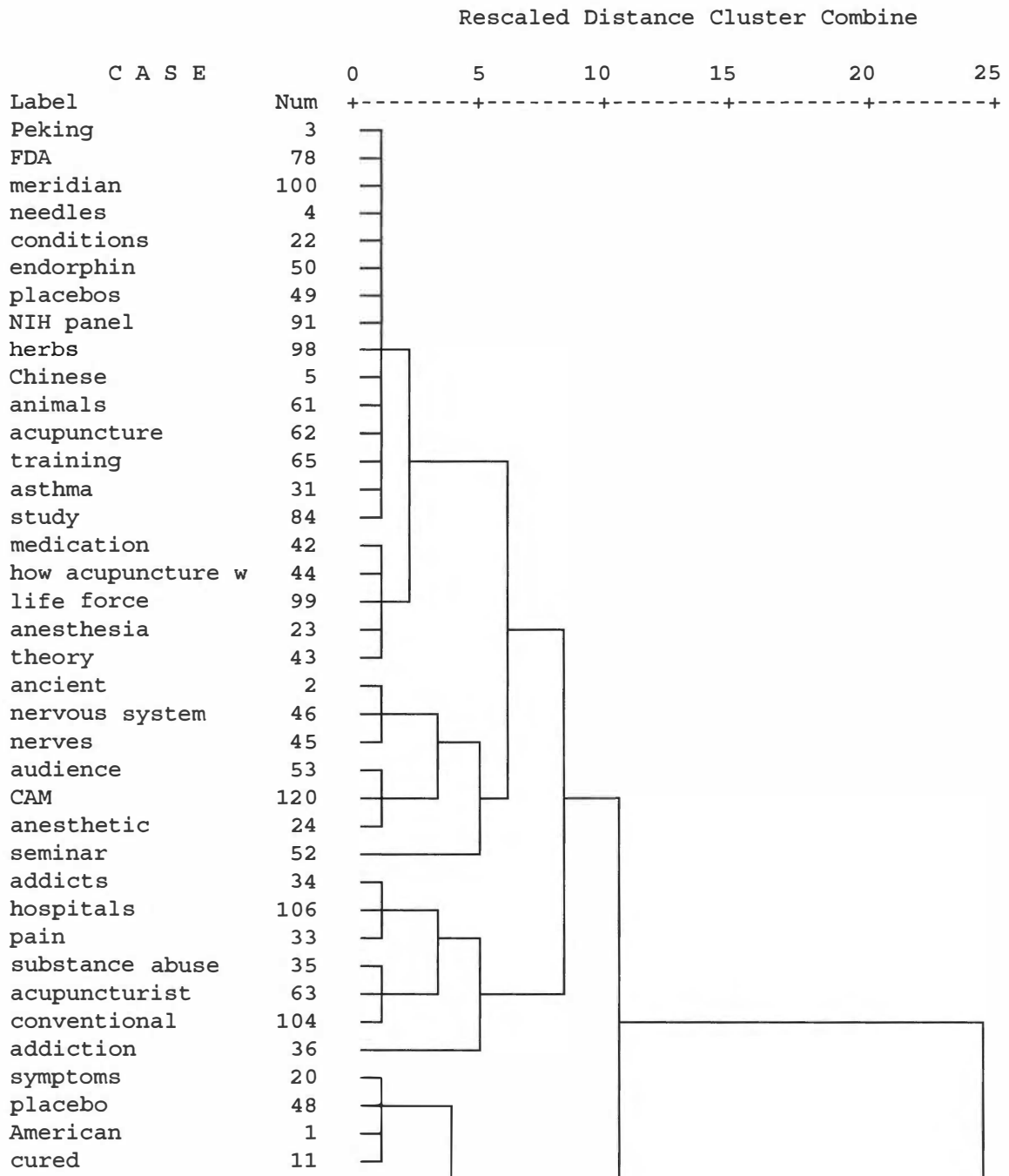


Figure 2. Detailed View of the Original Clustering Dendrogram (the Dendrogram Produced Before Term Changes)

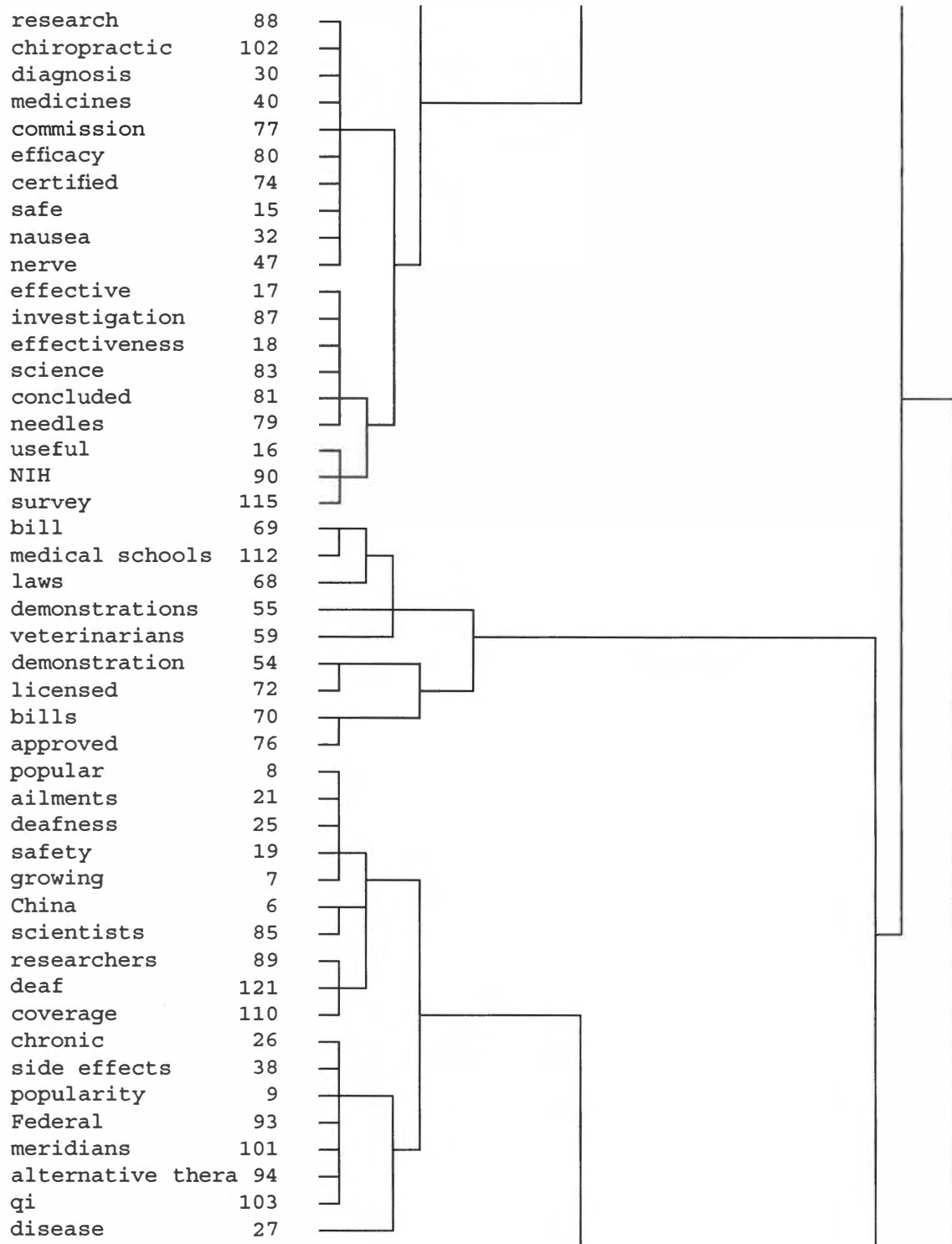


Figure 2. (continued)

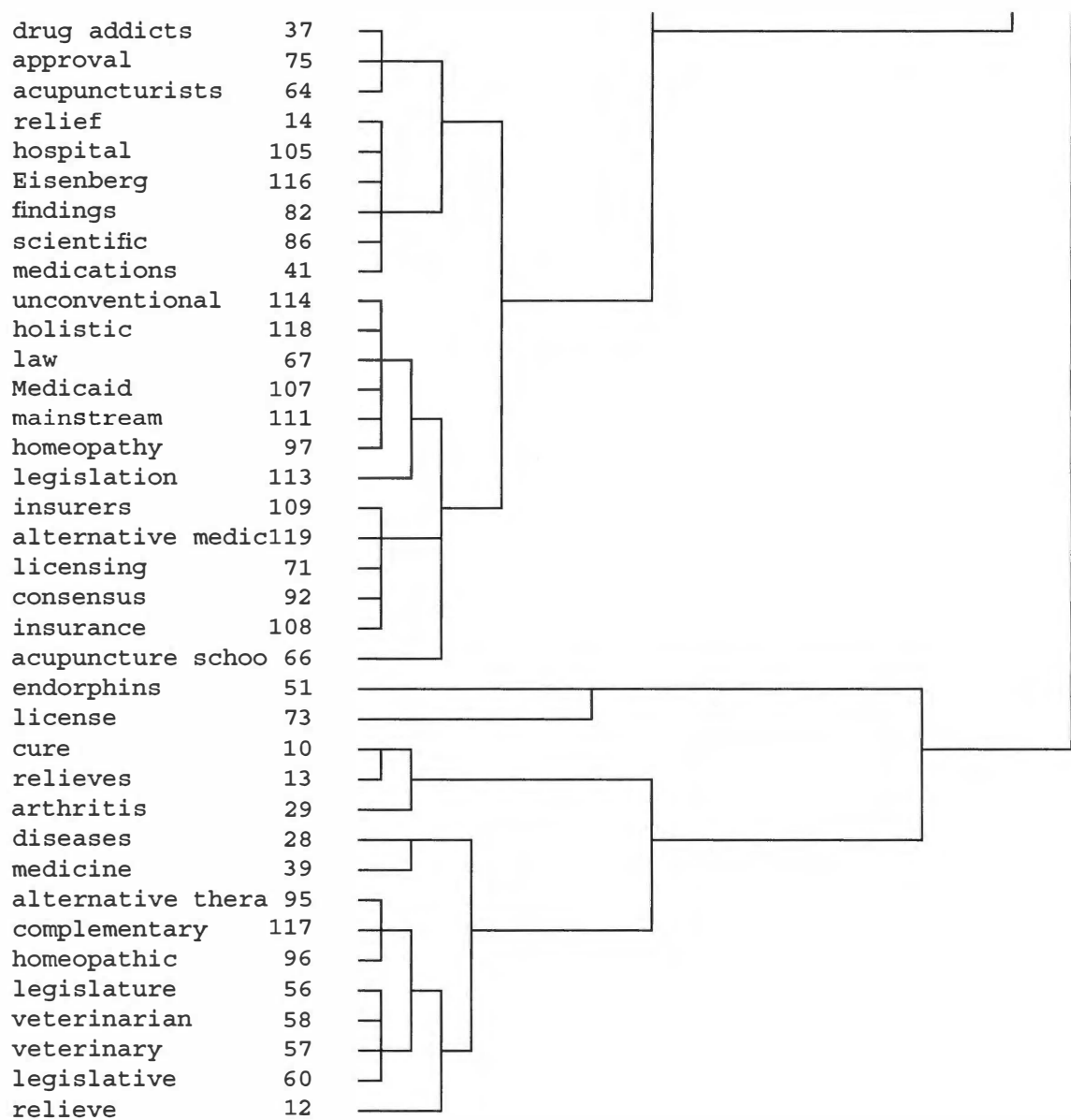


Figure 2. (continued)

the word “legislature” but “assembly” because the body was called the “state assembly.” Some articles talked of “legislative” action; some of “legislation.” Some used the term “licensing of acupuncturists;” some the terms “licenses for acupuncturists.” Therefore, three very similar stories might consist of the following three different lists of words. One story might use the words “assembly,” “bill,” and “license.” Another might use the words “legislature,” “law,” and “licensing.” A third story might use the words “legislative hearing,” “bills,” and “licenses.”

Of course, one would expect that a dendrogram that plots 125 words needs interpretation to be useful. The dendrogram is not expected to give a definitive answer but it to be used as a tool. With this in mind, it was decided to try combining some words that had similar meanings. See Table 2 for lists of words that were combined into one term.

The “find and replace” function in Microsoft Word was used to find the terms in the left column that appeared in the news story file and replace them with the words in the right column. The terms were also changed in the VBPro basic list. This resulted in a list of 93 terms. This list and the adjusted file of stories were submitted to VBPro’s coding procedure. The output coding file was submitted to VBMap to calculate eigenvectors. Such eigenvectors were submitted to SPSS’s classify program, which output a second dendrogram. The clusters produced in this dendrogram were more in alignment to the themes noticed while viewing terms in context. It can be viewed in Figures 4 and 5 in the Results Chapter. In order to choose dominant frames, the clusters of words created on the first pass in this second dendrogram were inspected. These groups of words were viewed in context using VBPro’s search program. A category search list was created for each of the clusters and submitted to VBPro’s search procedure. This allowed the discarding of some clusters based on the observation that they did not make for a significant frame in context.

This process resulted in the selection of six frames from the clusters. The words

Table 2. Words and Phrases Combined to Create Second Dendrogram

Words or Phrases Combined	Changed to
useful usefulness	useful(ness)
relieve relief relieves relieved	relief
theory theories	theory
legislative legislation legislature	legislative
endorphin endorphins	endorphin(s)
demonstration demonstrations	demonstration(s)
medication medications	medication(s)
meridian meridians	meridian(s)
abortion abortions	abortion(s)
alternative therapy alternative therapies	alternative therapies
Bill (man's name)	wbill
homeopathic homeopathy	homeopathy
insurance insurer insurers	insurance
bill bills	bill
veterinarian veterinarians	veterinarian(s)
how acupuncture works how it works why acupuncture works why it works	how acupuncture works

in these frame clusters were again viewed in context. Words which did not distinctly contribute to the frame were discarded from the frame. For example, in the first frame, which was later named “anesthesia,” the word “seminar” was discarded, leaving only anesthesia and anesthetic. In context, it was discovered that while there were two or three stories about seminars in the 1970s where acupuncture was demonstrated as a anesthetic and anesthesia, most of the stories containing these two later terms did not contain the word “seminar.” Also, during this reading of frame terms in context, notes were made about the meaning of the frame in each particular year that it occurred.

Step Six: Graphing Frames

The next step was to graph the prominence of dominant frames according to year. The prominence was operationalized as the average number of times the terms in each dominant frame appeared in each article for that year. The reason for using the average number of frame terms instead of the total number of terms is that there are dramatic differences in the number of stories in different years. For example, in 1972 there were 88 articles and in 1978, there were five. Therefore the total number of frame terms in 1972 would be greater than for 1978, not because of the interest in any one frame but because of the high number of articles being published then.

In order to obtain the data needed to create such a graph, VBPro was utilized to create a list containing the frequency of terms for each selected frame for each news article. A VBPro category search list was created for each of the frames, which contained the terms of the frame. For each frame, the search list was submitted to VBPro’s coding procedure. A word processing program was then used to add an additional column to the code file. This column contained a numeral corresponding to the year the news story was published.

This revised numeric data file was submitted to SPSS to produce both absolute and relative frequencies for each of the dominant frame set of terms for each year. SPSS was

then used to create a bar graph of the relative frequencies for each dominant frame. The numbers and graphs were then inspected and analyzed to determine any changes in framing over the 35-year period.

Interpretative Analysis

Research Question Three asks:

Do historical milestones of diffusion precede or follow increases in the number of articles?

To answer this question, lines corresponding to the five acupuncture milestones were drawn and labeled on the bibliometric graph. This graph, as well as the list of counts, was inspected. The years containing spikes in the number of articles were noted. The milestones were inspected to see if there were any historical events that correspond to those spikes and to determine if such spikes occurred before or after them.

Research Question Four asks:

Do historical milestones of diffusion precede or follow changes in framing?

To answer this question, lines and labels corresponding to each of the five milestones were drawn on each of the frame graphs. The publication layout software, InDesign, was used to draw such lines. Also, the VBPro code procedure output was utilized. It lists the number of times a term from each frame occurred in each story and is arranged chronologically. This list was made into a table and lines and labels corresponding to the milestones were inserted at the proper places chronologically. The graphs and table were

inspected. The years in which frame occurrences were high, low and non-existent were noted and compared to the lines corresponding to the years of historical milestones. Also, it was determined whether increases and decreases in frames occurred before or after the milestones.

CHAPTER THREE: RESULTS

This study examined news media coverage concerning acupuncture during a 35-year period of diffusion at the macro level in the United States. Specifically, it looked at changes in the amount of coverage and in framing. It also examined how changes in the amount of coverage and in framing compared to five milestones of acupuncture's diffusion and whether they preceded or followed them. The methodologies employed were bibliometric counts, computer-assisted content analysis, cluster analysis and interpretative analysis.

The following sections present each of the research questions in order and the results achieved in attempting to answer that question.

Question One

Research Question One asks:

How has the number of articles concerning acupuncture in the national print media and medical journals changed over time?

To address this question, bibliometric counts were conducted of articles about acupuncture from 1968 to 2002 for each of the following sources:

- 1) *New York Times*;
- 2) *The Reader's Guide to Periodical Literature*, and
- 3) Medical journals consisting of *The Journal of the American Medical Association (JAMA)* and *The New England Journal of Medicine*.

Table 3 contains the numbers for the bibliometric counts. Counts for the three sources were also plotted as three lines on one graph (Figure 3) to show the similarities and differences in the three types of sources. The total number of articles for each year

Table 3. Bibliometric Counts from Three Sources for Articles about Acupuncture

	NYT	Medical J.	Reader's Guide	Total
1968	1	0	0	1
1969	2	0	0	2
1970	1	0	0	1
1971	26	3	6	35
1972	52	17	19	88
1973	39	9	12	60
1974	21	23	11	55
1975	10	7	6	23
1976	3	1	1	5
1977	5	1	3	9
1978	0	2	3	5
1979	3	0	5	8
1980	5	2	4	11
1981	5	6	1	12
1982	5	1	7	13
1983	1	1	3	5
1984	0	0	4	4
1985	2	0	3	5
1986	10	0	3	13
1987	1	0	1	2
1988	6	1	5	12
1989	4	2	4	10
1990	6	0	1	7
1991	3	0	2	5
1992	5	1	1	7
1993	10	3	2	15
1994	7	0	4	11
1995	5	2	4	11
1996	13	0	3	16
1997	20	1	10	31
1998	9	8	7	24
1999	10	3	7	20
2000	10	2	5	17
2001	9	4	5	18
2002	7	8	6	21
Total	315	108	158	581

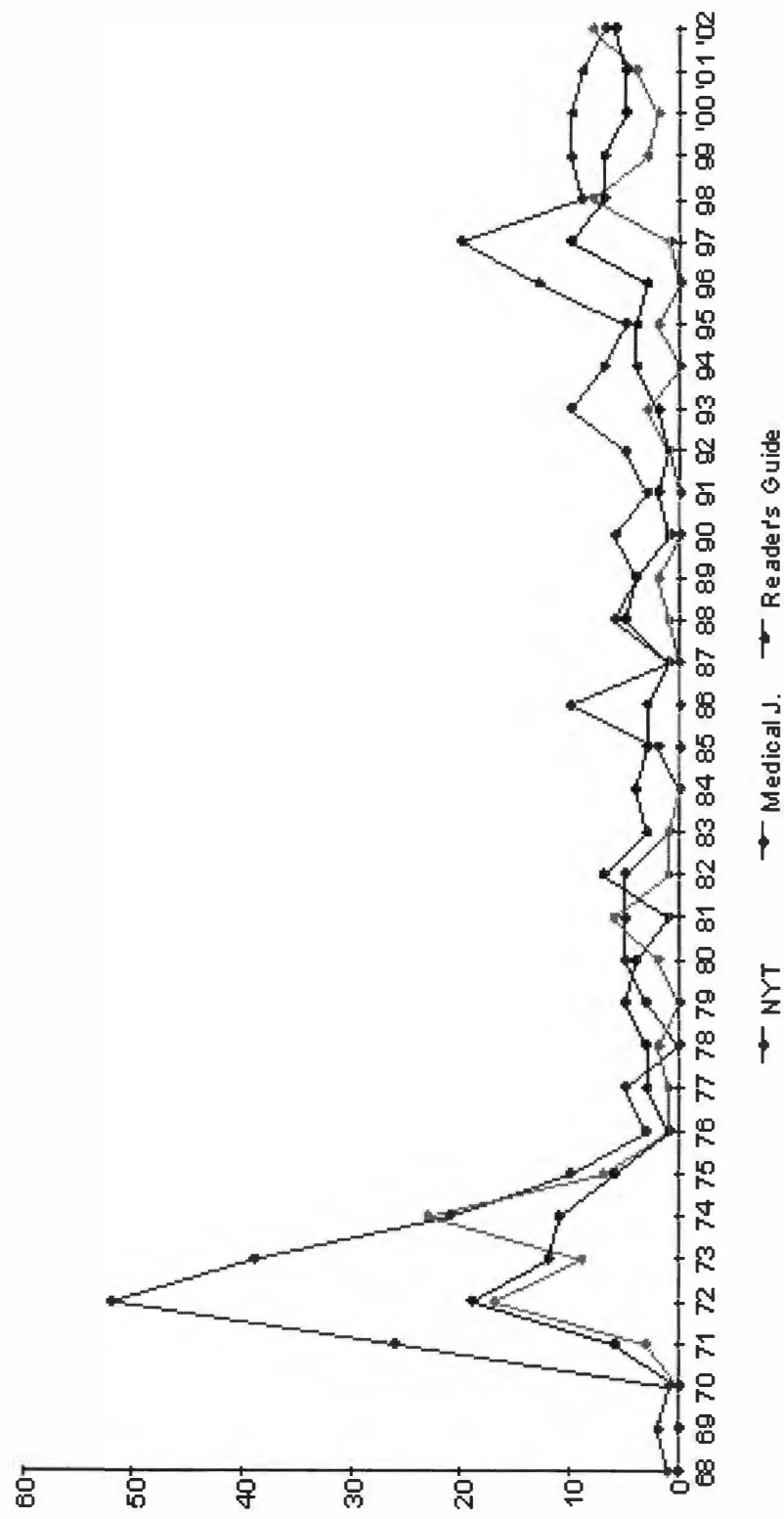


Figure 3. Graph of Bibliometric Counts for Articles about Acupuncture

were plotted on Figure 4 and one line was drawn indicating the mean plus one standard deviation and another was drawn indicating the mean plus two standard deviations. The peaks greater than the mean plus one standard deviation were considered significant. As can be seen, there are two significant peaks in amount of coverage. The first and largest occurred 1971-1974.. Little was written about acupuncture before 1971. Only the *New York Times* contained any such articles, with one in 1968, two in 1969, and one in 1970. In 1971, the year that Nixon announced his plans to travel to China and the year that NYT columnist James Reston received an acupuncture treatment while traveling with Kissinger in China, the number of articles jumped dramatically. The numbers are between 35 and 88 from 1971 to 1974. By 1975, the burst of articles about acupuncture had died down, although not to the nonexistent level of pre-1971.

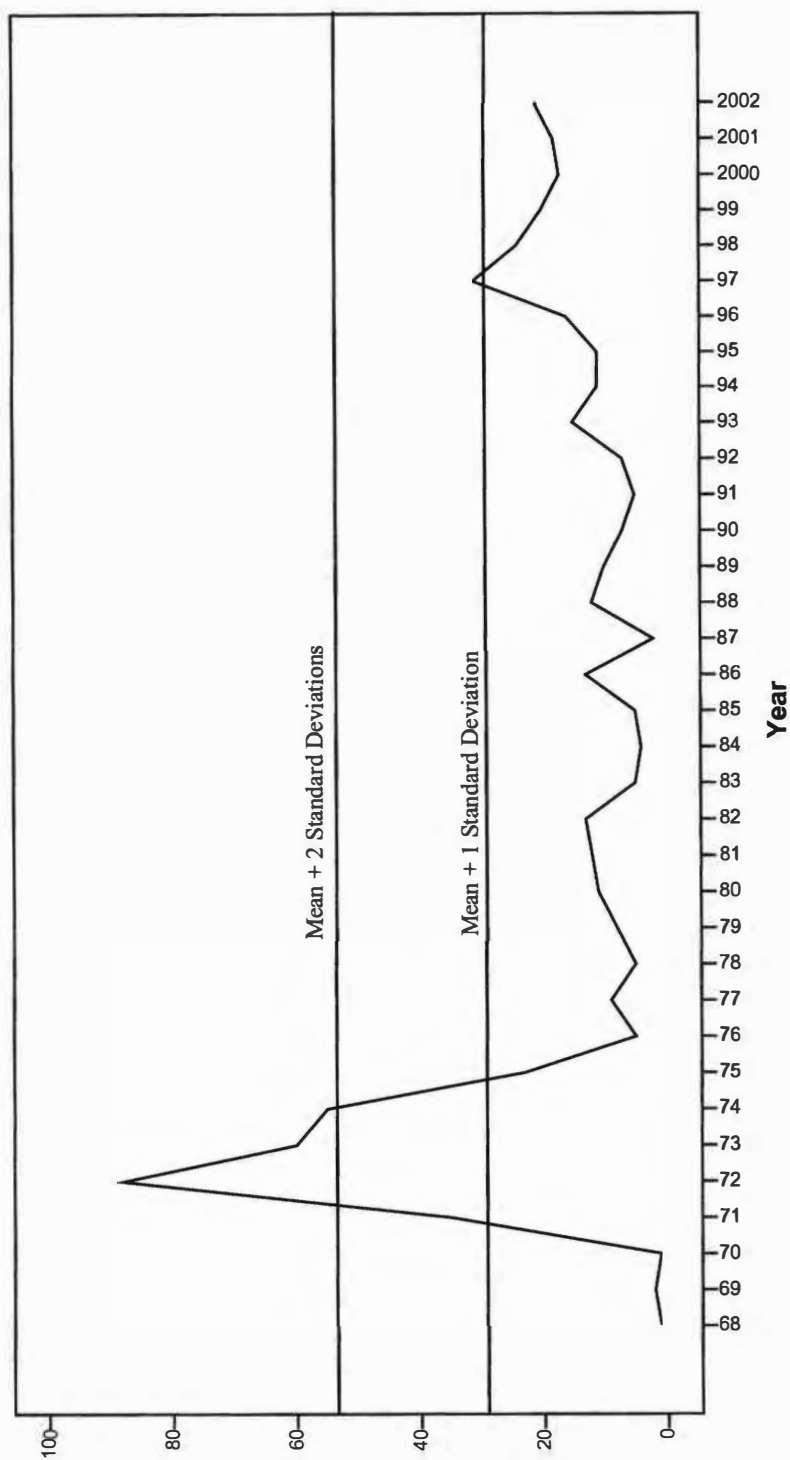
The second significant peak in coverage occurred in 1997, the year the NIH panel endorsed acupuncture. The number of articles reaches 31.

Question Two

Research Question Two asks:

How has the framing of acupuncture in the national print news media changed over time?

To answer this question, computer-assisted content analysis was utilized to determine prominent frames over the 35-year period and to determine to what extent these frames occurred in each of those years. The 195 news articles from the *New York Times*, *Newsweek* and *The Washington Post* from 1968 to 2002 were analyzed in regard to co-occurrence of 93 selected terms. VBPro and VBMap were utilized to produce term vectors, or eigenvectors, which represent in multidimensional space the co-occurrence of the terms. These eigenvectors are listed in Table 4. The eigenvectors were submitted to SPSS, which



Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
V5_A	35	1	88	16.63	18.311
Valid N (listwise)	35				

Figure 4. Graph and Descriptive Statistics for Total Number of Articles about Acupuncture from Bibliometric Count of Three Sources

Table 4. VBMap Output for 94 Selected Terms from News Stories about Acupuncture

<i>Term</i>	<i>Coordinate 1</i>	<i>Coordinate 2</i>	<i>Coordinate 3</i>
ancient	-0.5	0.18	-0.02
needles	-0.28	0.1	0.12
China	0.05	0.13	-0.09
growing	0.16	0.29	0.02
popular	0.05	0.18	0
popularity	0.23	0.26	0.04
cure	-0.09	0.09	0.04
cured	-0.19	0.18	0.18
relief	0.11	0.24	-0.25
safe	-0.01	0.29	0.02
useful(ness)	-0.1	0.4	-0.04
effective	-0.09	0.27	0.04
effectiveness	-0.11	0.3	-0.18
safety	-0.07	0.15	0.06
ailments	0.1	0.32	-0.03
conditions	-0.24	0.07	0.1
anesthesia	-0.25	0	0.2
anesthetic	-0.1	-0.04	0.08
deafness	0.12	0.41	0.03
chronic	0.08	0.04	0.06
diseases	0.09	0.13	0.09
pulse	-0.44	0.35	-0.05
nausea	-0.26	0.35	0.09
pain	-0.21	0	-0.16
addicts	-0.41	0.15	-0.23
substance abuse	0.09	0.36	0.06
side effects	0.18	0.19	0.23
medicines	-0.01	0.24	0.02
medication(s)	-0.33	0.12	0.17
theory	-0.32	0.05	0.2
how acupuncture work	-0.42	0.18	0.17
nerves	-0.36	0.08	0.19
nervous system	-0.22	0.18	0.12
placebo	-0.5	0.23	0.09
endorphin(s)	-0.01	-0.06	0.05
seminar	-0.05	-0.02	0.07
audience	-0.05	-0.07	0.02
demonstration(s)	0.18	-0.1	0.49
veterinary	0.25	-0.09	0.55
veterinarian(s)	0.08	-0.07	0.43
animals	-0.47	0.17	-0.05
acupuncture	-0.23	-0.02	-0.16
acupuncturist	-0.18	-0.15	-0.38
acupuncturists	-0.04	-0.07	-0.26
training	-0.37	0.15	-0.11
acupuncture schools	0.13	-0.09	-0.31
law	0.05	-0.24	-0.28
legislative	0.01	-0.28	-0.43
state	0.06	-0.26	-0.28
bill	-0.06	-0.26	-0.39
licensing	0.04	-0.23	-0.48
licensed	0.04	-0.16	-0.32
license	-0.03	-0.28	-0.32
licensed physicians	-0.01	-0.15	-0.12
certified	-0.19	0.25	-0.23
approval	0	0.01	-0.37
approved	-0.18	0.32	-0.29
FDA	-0.5	0.18	-0.02
needles	-0.11	0.32	-0.07
efficacy	-0.16	0.2	-0.02

Table 4. (continued)

<i>Term</i>	<i>Coordinate 1</i>	<i>Coordinate 2</i>	<i>Coordinate 3</i>
concluded	-0.04	0.19	0.01
findings	0.05	0.16	-0.13
science	-0.08	0.27	-0.08
study	-0.33	0.22	0.02
scientists	0.11	0.38	0
scientific	-0.02	0.01	-0.01
investigation	-0.14	0.3	-0.11
research	-0.27	0.37	0.04
researchers	0.23	0.38	-0.12
NIH	-0.31	0.16	0.06
consensus	0.19	0.12	-0.37
federal	0.47	0.36	0.03
alternative therapies	0.33	0.09	0.42
homeopathy	0.3	0.31	0.11
herbs	-0.23	0.15	0.03
life force	-0.53	0.24	0.08
meridian(s)	-0.25	0.22	0.15
energy	0.5	0.37	0.13
chiropractic	-0.24	0.27	0.03
qi	0.54	0.4	0.07
conventional	0.06	0.11	-0.02
hospitals	-0.08	-0.08	-0.21
Medicaid	0.27	0.24	-0.33
insurance	0.07	0.03	-0.2
coverage	0.4	0.44	-0.15
mainstream	0.29	0.2	-0.14
medical schools	0.4	0.32	-0.08
unconventional	0.48	0.35	-0.2
survey	0.01	0.09	0.09
Eisenberg	0.12	0.23	-0.1
complementary	0.2	0.01	0.28
holistic	0.49	0.38	-0.13
alternative medicine	0.18	0.16	-0.11

Eigenvalues

5.8091 4.8714 3.7003

Percentage Total Variance Per Factor

7 6 5

Cumulative Percentage Total Variance

7 14 18

Percentage Extracted Variance Per Factor

40 34 26

Cumulative Percentage Extracted Variance

40 74 100

produced a dendrogram showing in two-dimensional space how key words co-occur in these stories. The resulting dendrogram can be viewed in its entirety in Figure 5 and, for a closer look at words and the lines connecting them, in three sections in Figure 6.

In the dendrogram, a single line connecting words only one point on the distance scale indicate the strongest relationship while increasing distances of connection indicate decreasing co-occurrence in the articles. Groups of words connected with only one line are considered to be clusters from which frames are chosen. The dendrogram in Figure 5 and 6 contains 22 such clusters of words. Each of these groups was examined for the following criteria: the relationship between the words, the meaning of the words individually and together in context, and any variation in how they occurred in articles over time. Based on these criteria, six frames were selected. Next, each word in each frame was examined to determine the extent to which it contributed to the frame. If a word did not contribute to a particular frame in context, it was discarded as a frame term. Also, to the second frame group, “Deafness/Addicts,” the word “addicts” was added to the terms “scientists,” “deafness,” and “substance abuse,” Keeping in mind that the dendrogram is not definitive, but to be used as a tool, adding the word “addicts” was investigated by conducting a search of these three words, plus “addicts.” It was observed that using only the three frame terms clustered together in the dendrogram ignored some important stories. Several stories regarding scientists investigating acupuncture’s use for substance abuse were neglected because they used the term “addicts” instead of “substance abuse.” Adding the term “addict” contributed in a substantial way to frame two and made sense in context. It was decided not to add the term “addiction” as well because it was ambiguous in context. At least a few early stories contained concerns by acupuncture opponents that patients might develop an addiction to acupuncture. The six selected frames and the key terms are listed in Table 5.

***** HIERARCHICAL CLUSTER ANALYSIS *****

Dendrogram using Average Linkage (Between Groups)

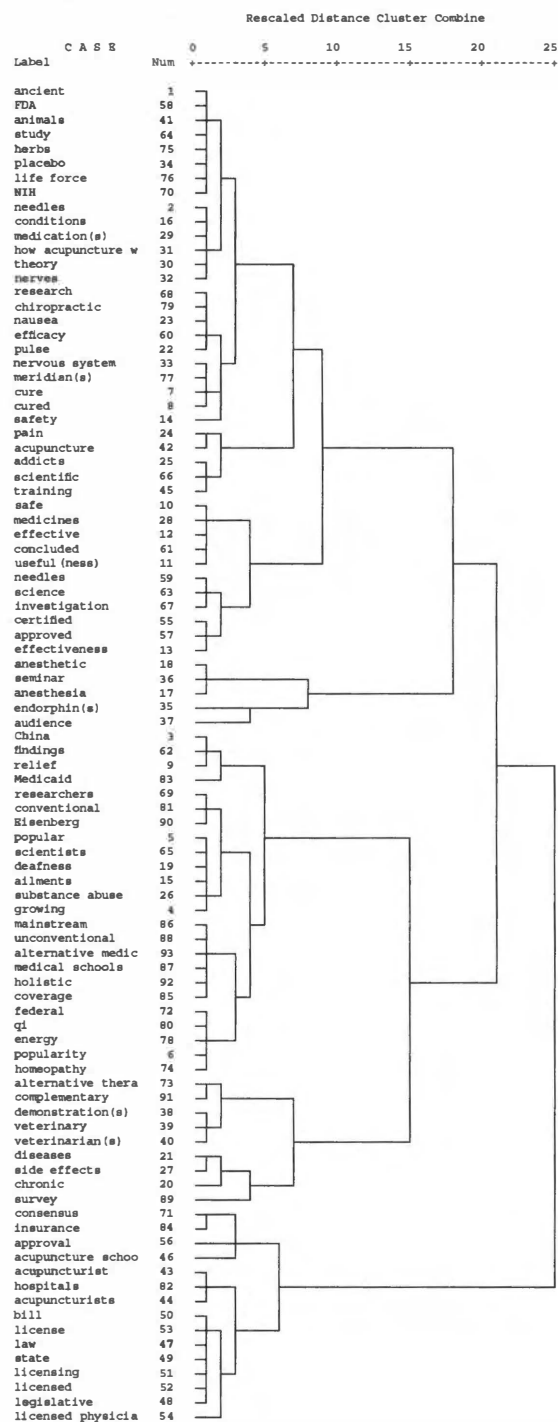


Figure 5. Full View of Clustering Dendrogram from which Frames were Selected

* * * H I E R A R C H I C A L C L U S T E R A N A L Y S I S * * *

Dendrogram using Average Linkage (Between Groups)

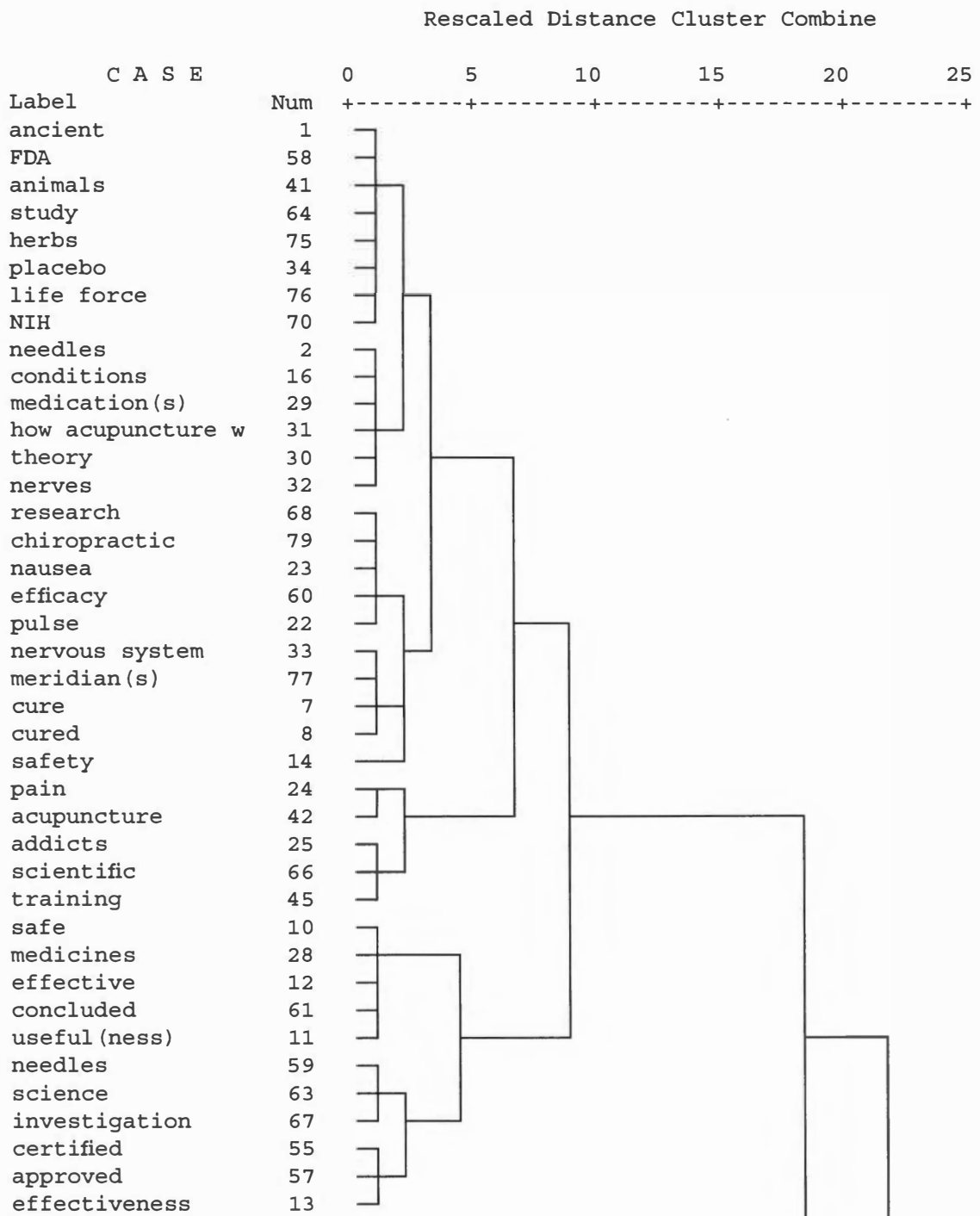


Figure 6. Detailed View of Clustering Dendrogram from which Frames were Selected

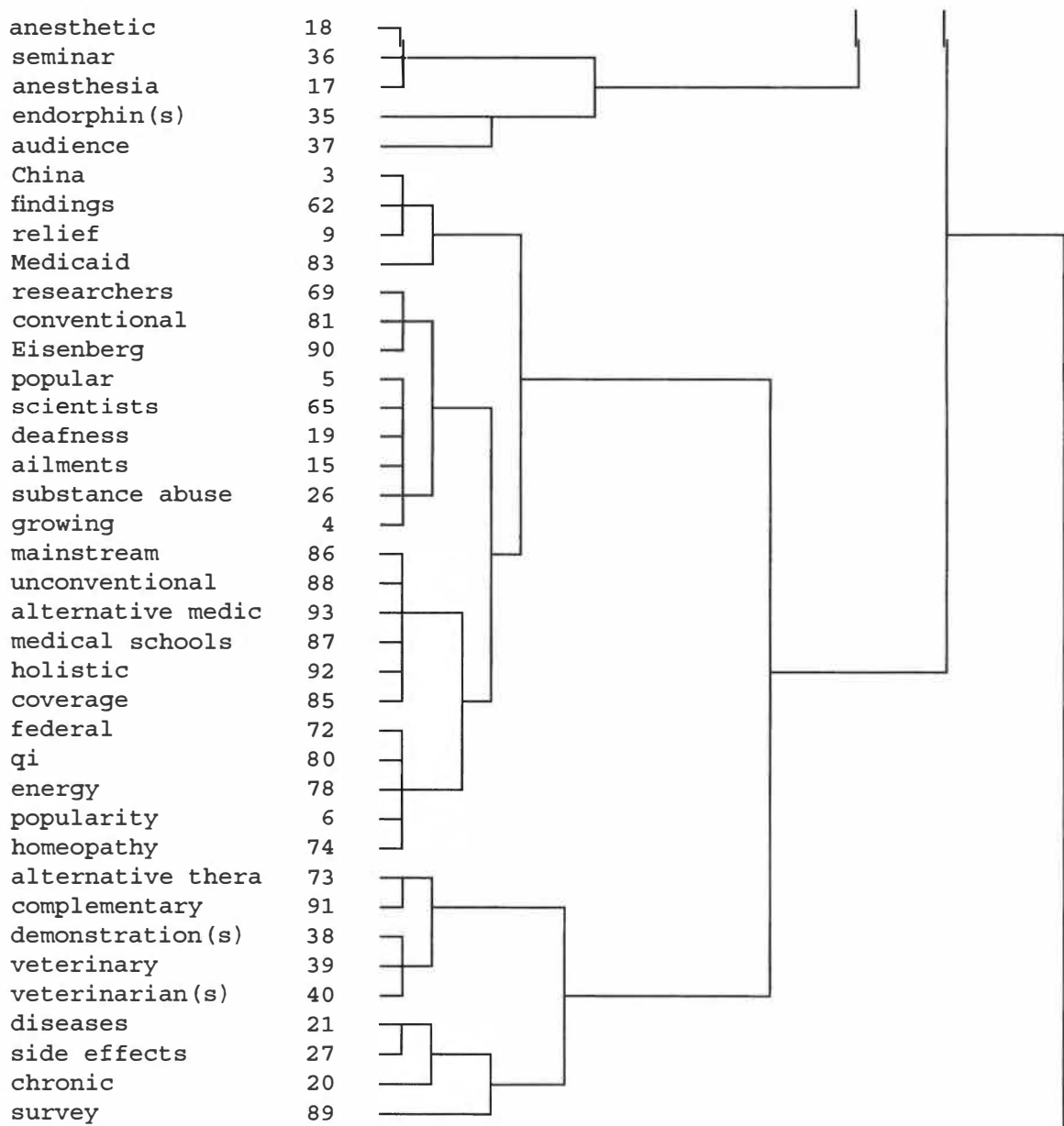


Figure 6. (continued)

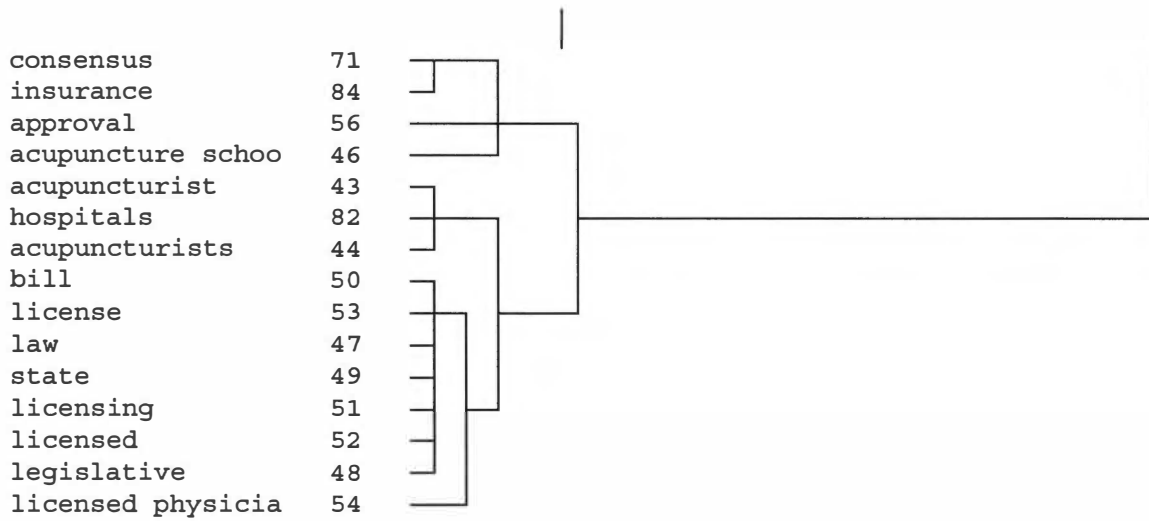


Figure 6. (continued)

Table 5. Six News Media Frames and Terms as Selected from Cluster Grouping Dendrogram Figure 5

<i>Frame</i>	<i>Term</i>
(1) <i>Anesthesia</i>	anesthetic anesthesia
(2) <i>Deafness/Addicts</i>	scientist(s) deafness addicts substance abuse
(3) <i>Legislative</i>	bill license law state licensing licensed legislative
(4) <i>Safe & Effective</i>	effective concluded useful(ness) safe
(5) <i>Study</i>	FDA study placebo NIH
(6) <i>Alternative Medicine</i>	mainstream unconventional alternative medicine medical schools holistic coverage

In order to determine if and how these frames had changed over time, the terms for each frame were entered as a group into VBPro's coding procedure. Any time one of the terms appears in a story, the coding procedure counts it. The resulting output was submitted to SPSS along with a code for each article indicating which year it appeared. From this data, SPSS was used to produce a chart graphing the average number of times a frame term appeared in the news articles for each year. Figure 7 shows small graphs for each frame on two facing pages for comparison. Figures 8 - 13 give a larger and more detailed view. As can be seen, some frames are more prominent than others during certain time periods. Based on these graphs, an attempt was made to place the frames in chronological order based on prominence of occurrence.

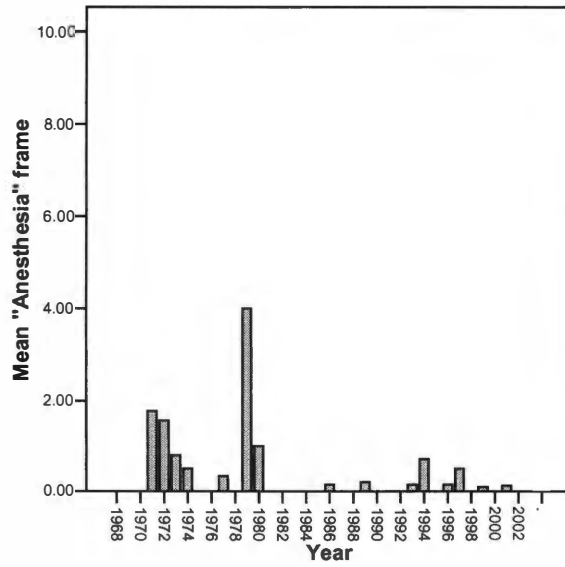
Frame One

Called "Anesthesia," it contains the terms "anesthesia" and "anesthetic." Many of the first stories about acupuncture in the 1970s in this country were about its use as an anesthesia during surgery. Many of the stories are quite dramatic, with reporters watching through observation domes or at demonstrations where surgeons perform surgery, including open-heart and brain surgeries, where patients are completely conscious. Reportedly, the only anesthesia being used is acupuncture. The patients drink through straws during the operation and, after surgery, *walk* away from the operating table. Anesthesia was not an ancient application of acupuncture but was developed by Chinese doctors in the 1960s.

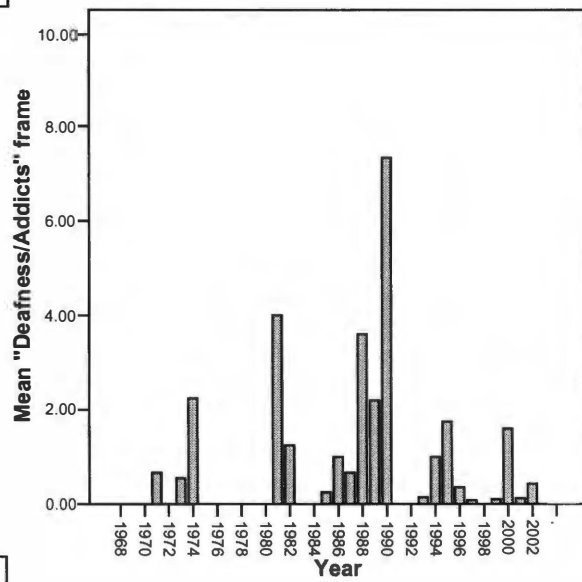
Some of the stories in Frame one involve Western doctors expressing suspicion, citing possible use of hypnosis or some accompanying drug; some of them make trips to China to investigate anesthesia claims. It is reported that it does not always work 100 percent and that some times chemical anesthesia must also be given. Some studies are done to investigate *why* it works. Some of the articles report the use of acupuncture in operations in the United States.

Figure 7. Comparison of All Six News Media Frames: Graphs Showing the Average Number of Times a Frame Term Occurred Per News Story in a Given Year

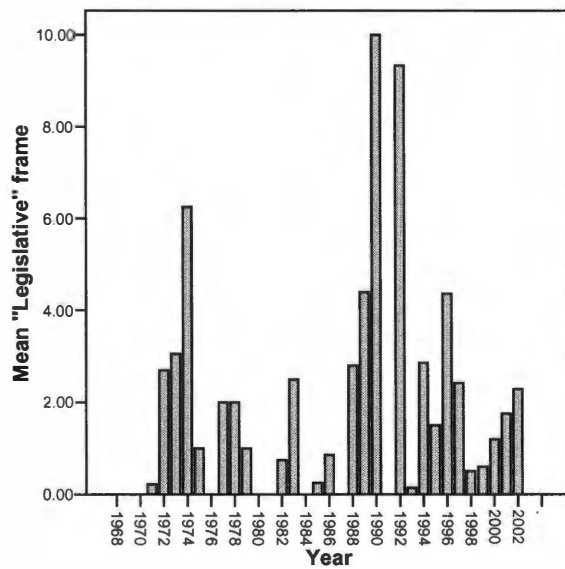
Frame One



Frame Two



Frame Three



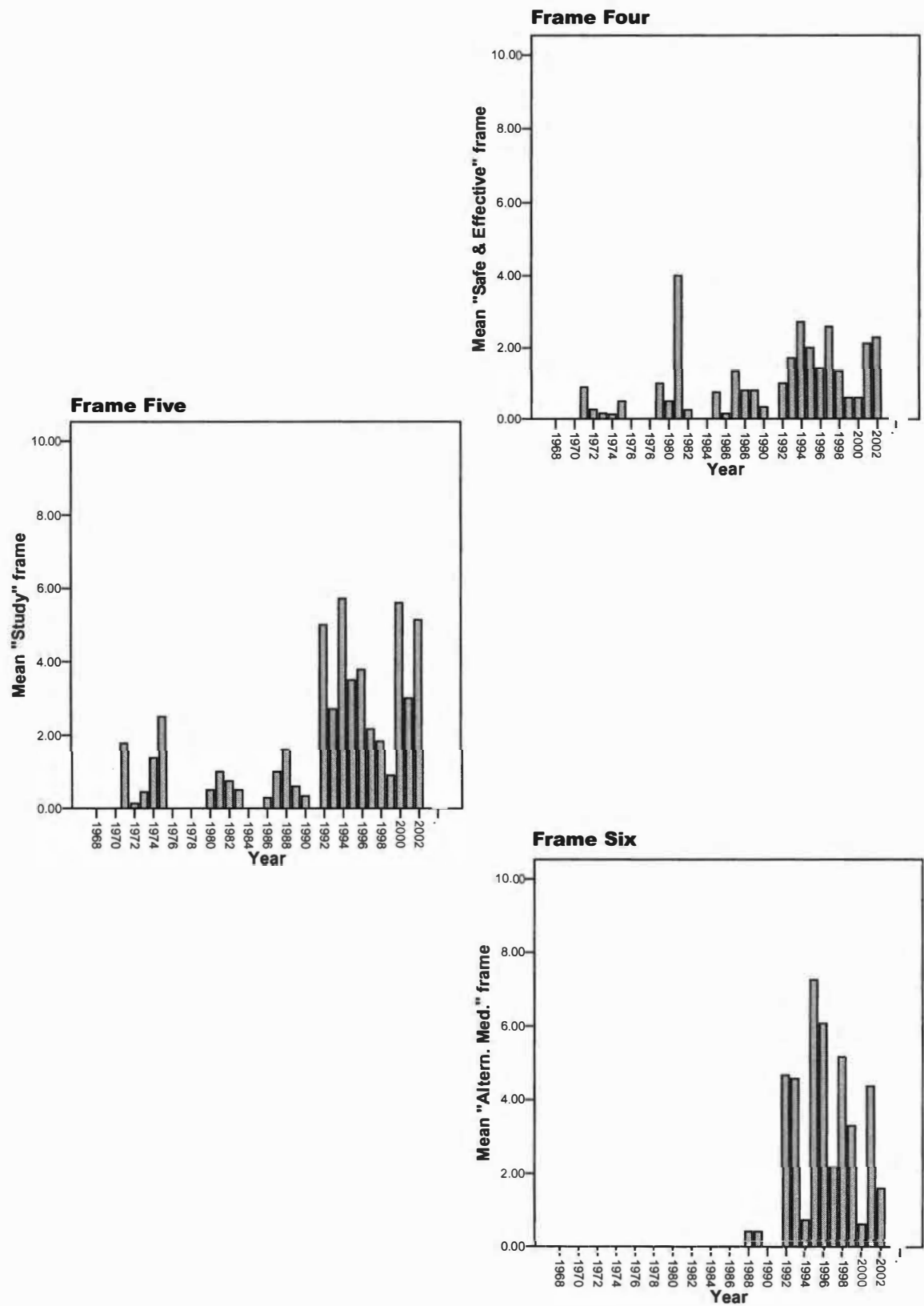


Figure 7. (continued)

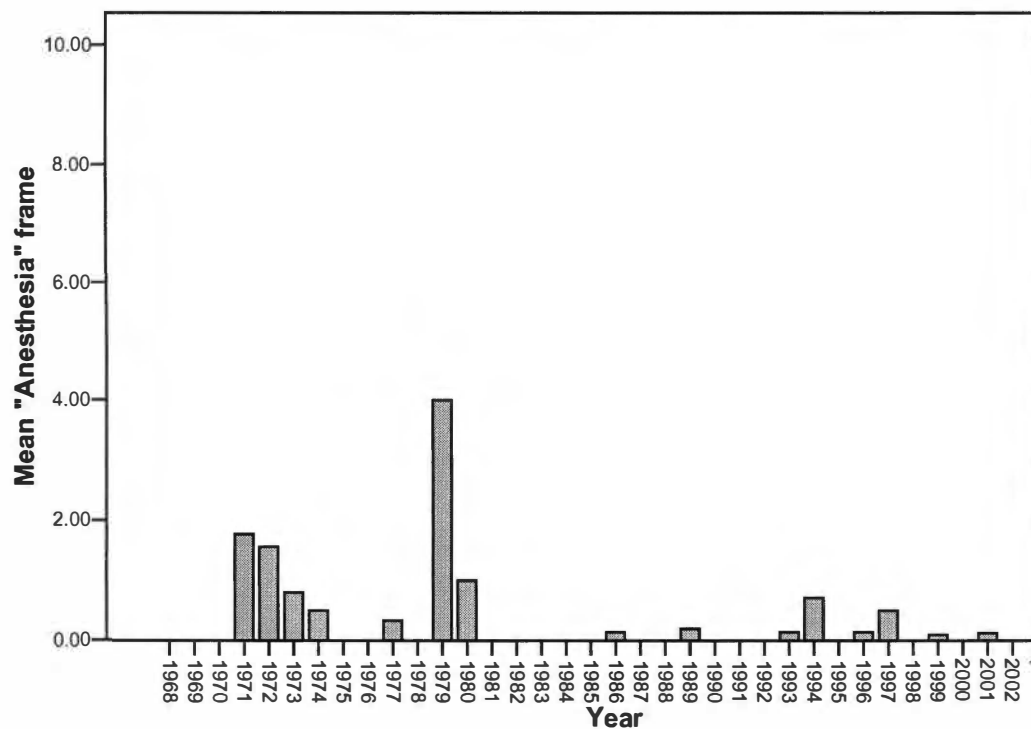


Figure 8. Graph of News Media Frame 1, "Anesthesia"

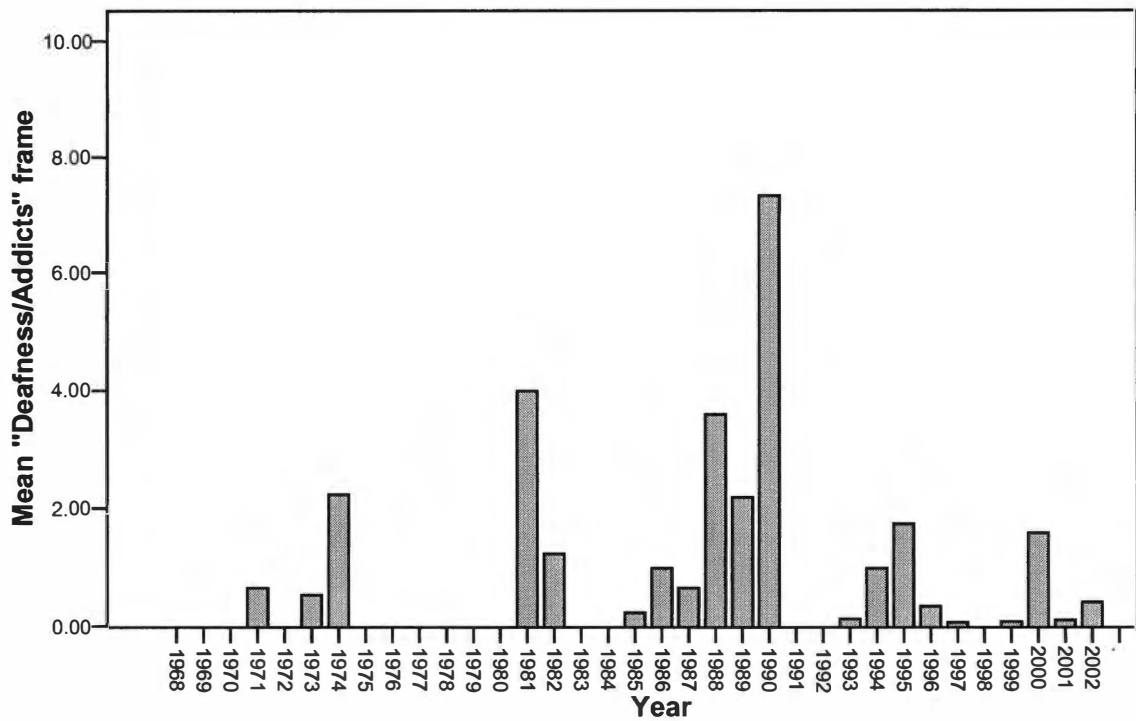


Figure 9. Graph of News Media Frame 2, "Deafness/Addicts"

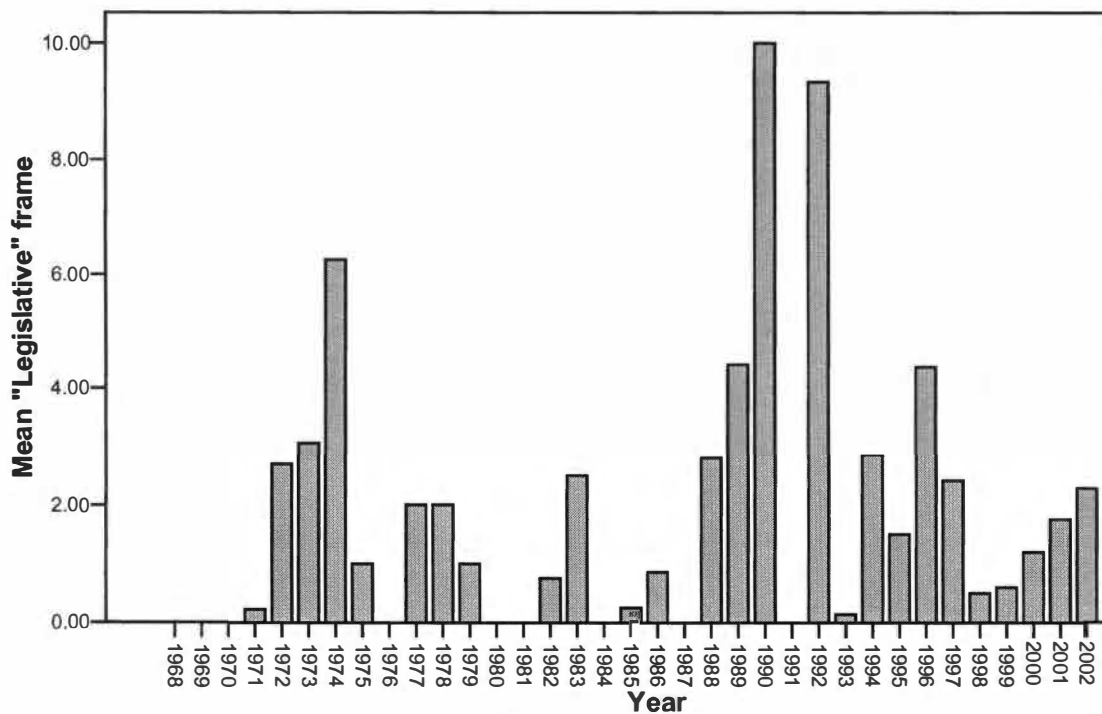


Figure 10. Graph of News Media Frame 3, "Legislative"

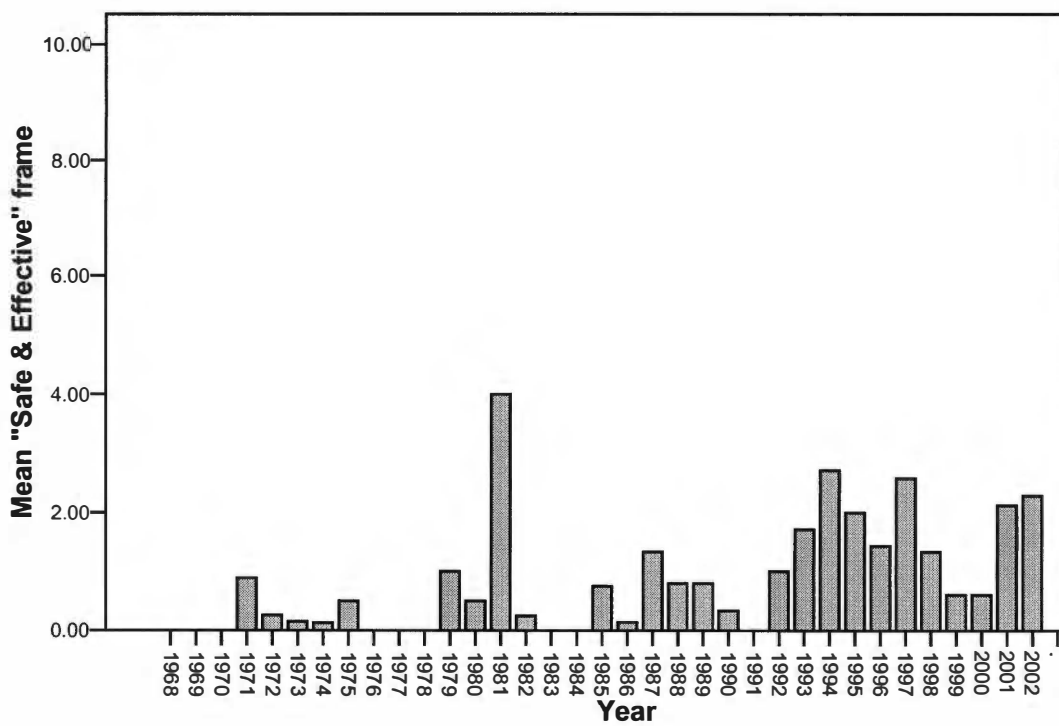


Figure 11. Graph of News Media Frame 4, "Safe & Effective"

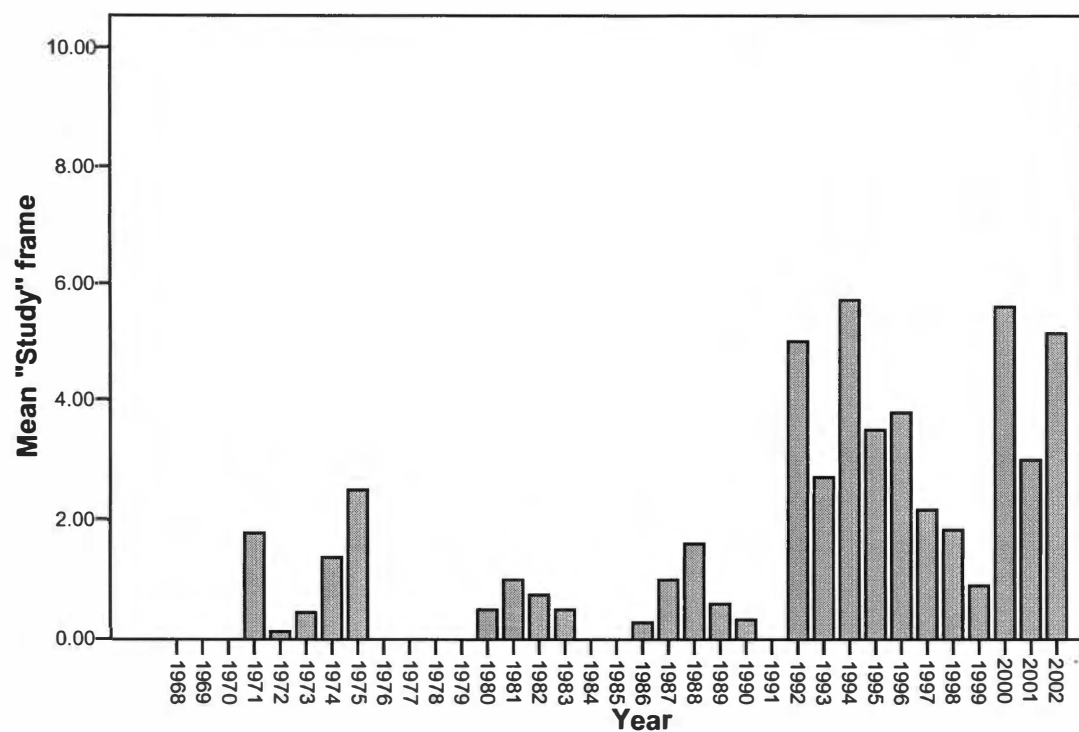


Figure 12. Graph of News Media Frame 5, "Study"

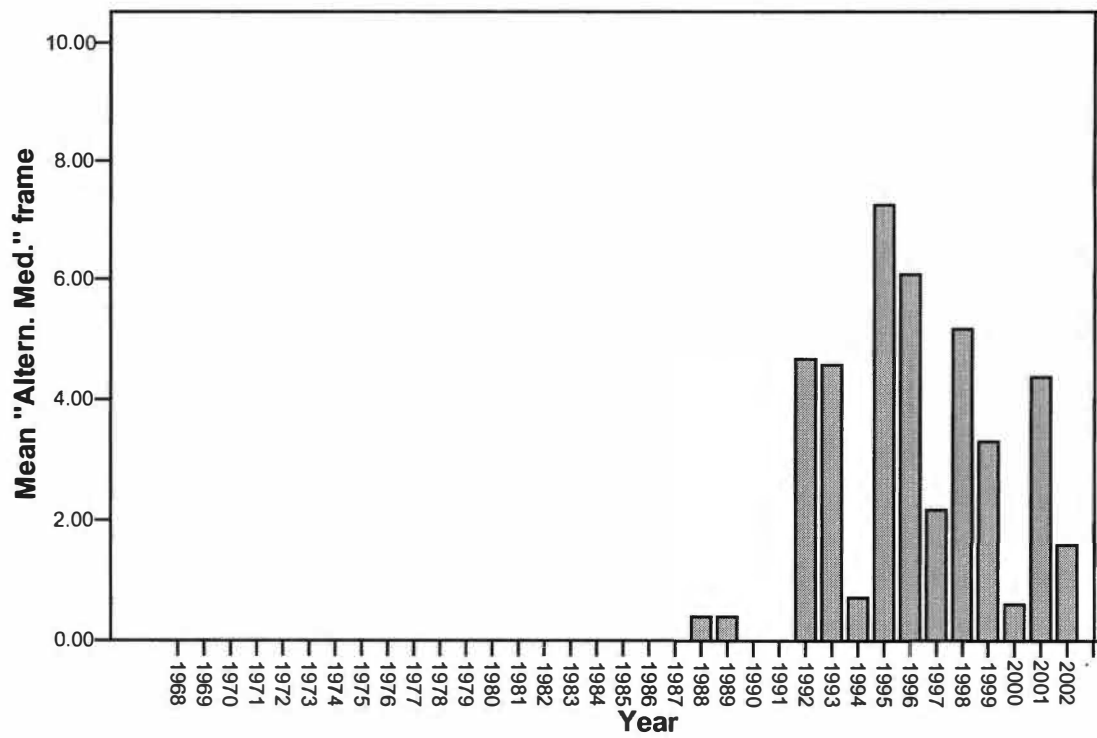


Figure 13. Graph of News Media Frame 6, "Alternative Medicine"

From 1981 to 1993, there is almost no mention of acupuncture use as anesthesia. When this frame's terms are used, they mostly appear in a list of some uses of acupuncture, a study of how acupuncture works, and a report of a woman having brain surgery where the amount of chemical anesthesia is reduced because of acupuncture. In a 1994 story, a doctor discredits its use as an anesthesia. In 1995 and 1996, there are brief mentions that some doctors and dentists use it as such, but with no details or anecdotes. After 1996, the mentions are usually about the use of acupuncture to ease the nausea caused by chemical anesthesia, which was one of the uses endorsed by the National Institutes of Health consensus panel that year.

Frame Two

This frame, "Deafness/Addicts," seems to have an odd grouping of terms ("scientist(s)," "deafness," "addicts," and "substance abuse"), but in context, it makes sense. While the use of acupuncture as anesthesia during surgery was the use that first received all the publicity, the use of it for treating deafness and substance abuse soon followed in news media attention. As such, these uses caught the attention of doctors and scientists, and several scientific studies were conducted concerning them. Stories about Chinese clinics where deaf children were being cured with acupuncture appeared in the *New York Times* even before Reston went to China. Soon, after Reston's treatment and additional stories on acupuncture for deafness, parents of deaf children in the United States were flocking to acupuncture clinics. Stories in 1973 and 1974 concerned studies in the United States to test the acupuncture's efficacy for treating "nerve deafness," studies which found acupuncture to be only slightly helpful of some cases in this condition. Little is written about the treatment of deafness after 1974.

The first story about the use of acupuncture to treat withdrawal symptoms of addicts occurred in 1973 and was about doctors experimenting with it in Hong Kong. The next

mention is in 1981 and is about a federally funded study to examine the use of acupuncture to help heroin addicts detox. On the graph, the cluster of bars in the late 1980s, ending in 1990, are mostly concerned with large cities using acupuncture to help them grapple with the drug addiction problem they were experiencing at that time. During this time, scientists studied its effectiveness in this application. Beginning in 1993, the use of acupuncture to treat substance abuse was mentioned mainly as part of larger stories about alternative medicine. Scientists were still trying to determine how acupuncture works, including how it works in treatment of addiction. There are several mentions of a substance abuse program called Drug Court, which included acupuncture. In 1994, the Federal Drug Administration (FDA) was asked by acupuncturists to approve needles for the treatment of certain conditions, including substance abuse. The FDA approved the needles but did not address acupuncture's effectiveness for treating specific conditions. In 1997, the NIH consensus panel, which reviewed the existing research, listed drug addiction as one of the conditions for which acupuncture *might* be effective.

Frame Three

It is called "Legislative" and contains the following words: "bill," "license," "law," "state," "licensing," "licensed," "legislative." Approximately one year after Reston's acupuncture treatment in China, stories about governmental action regarding acupuncture in this country began to appear. In July 1992, the New York State Department of Education ruled that only New York licensed physicians could do acupuncture and then only for research purposes in medical schools, teaching hospitals and research facilities. Many stories about action in other states involve the same restriction or the restriction that acupuncturists must be supervised by a licensed physician. In the 1970s, several legislative bodies held hearings to consider legislation regarding the practice of acupuncture. Nevada was the first state to legalize and license the practice of acupuncture in 1973 and the first to

allow the practice without the supervision of a licensed U.S. physician. Legal battles are also part of this frame in the 1970s, with some clinics being closed because acupuncturists are in violation of not having a physician's license, or because they are operating without the supervision of a licensed physician. There are also a few arrests and suspended physician's licenses. Also contained in this frame are several stories in the 1970s about an advisory commission on acupuncture appointed by the governor of New York. It recommended that education and training standards be established for acupuncturists and that those qualified be allowed to operate under the supervision of a licensed physician. Other stories include some about state governments involved in research concerning acupuncture.

In the late 1980s and in 1990, many of the stories in this frame involve state and local governments trying to cope with drug abuse and with the use of acupuncture as part of the solution. The big spike in 1992 is largely due to two topics: New York's state relaxation of licensing requirements for acupuncturists, no longer requiring them to have 10 years experience; and the new NIH Office for the Study of Unconventional Medical Practices. After 1992, this frame shifts away from legislative activity at the state and local level into three directions. One, is the mention of "licensed" in reference to acupuncturists and other complementary and alternative (CAM) practitioners when quoting them or when giving advice on selecting an acupuncturist. At this point, the licensing of acupuncturists seems to no longer be questionable or controversial, but a given. It is framed in such a way that gives credibility to "licensed" acupuncturists. Two, is the mention of different rules or requirements relating to CAM which vary state to state – licensing, licensing requirements, insurance coverage, etc. Three is the mention of three federal pieces of legislation considered or passed in the 1990s: The law establishing the NIH CAM office, The Dietary Supplement Health and Education Act, and the Access to Medical Treatment Act.

Frame Four

This frame, “Safe & Effective,” contains the words “effective,” “concluded,” “useful(ness),” and “safe.” The frame deals with the concern as to whether acupuncture is safe, effective and useful. The term “concluded” appears in stories about research conclusions or about committees, such as the NIH consensus panel in 1997, having examined research and announced conclusions regarding acupuncture. In the 1970s, many of the stories with this frame refer to acupuncture as useful and effective, usually in regard to pain relief. In some stories, its effectiveness and safety are questioned. At least one story deems acupuncture “useful” in that it is a “strong placebo.” In the 1980s, many of the stories concern studies regarding acupuncture’s usefulness and effectiveness, especially in regard to drug addiction. In the early 1990s, stories with this frame contain statements about research that has found acupuncture “safe and effective.” There is also a story in 1994 about acupuncturists asking the FDA to approve their needles as medical devices, in effect deeming them “safe and effective,” and a story in 1996 about the subsequent approval. In the early 1990s, this frame is also starting to merge with the “Alternative Medicine” frame, and many of the stories are about the safety and effectiveness of alternative medicine therapies and their Western medicine counterparts. In 1997, many of the stories concern the NIH consensus panel’s statement approving acupuncture as “effective and safe” and useful for a list of conditions. The committee said it was as effective as drugs and surgery for some conditions but safer. After 1997, the stories with this frame become more generally about complementary and alternative medicine – the concern that it may steer patients away from effective treatment; a call for integrating “safe and effective” CAM into Western medicine; and statements that neither CAM nor Western medicine is 100 percent safe and effective.

Frame Five

Called “Study,” it consists of the terms “FDA,” “study,” “placebo,” and “NIH.” In the 1970s, stories containing this frame are often about people calling for a study or more study of acupuncture, sometimes calling for the NIH to conduct it. Stories in the 1970s include several about a panel set up by the governor of New York to study acupuncture. Stories with the placebo term are usually in regard to the success of acupuncture being attributed to the placebo effect. There are a few stories in the 1980s with this frame that have to do with Americans going to China to study acupuncture, or with the Chinese coming here to study Chinese medicine’s effect on AIDS patients. However, the majority of the stories with this frame in the 1980s concern studies regarding acupuncture’s effectiveness with drug addiction. Stories with this frame in the 1990s and up to 2002 involve the FDA’s approval of acupuncture needles and the studies it examined in making the decision, and also studies of acupuncture and other CAM studies conducted by the NIH CAM office. References to placebo refer to placebo groups in studies being conducted on CAM and also talk of the placebo effect being the reason some other CAM therapies produce effects, although the placebo effect appears not to be associated with acupuncture in these later stories.

Frame Six

It is called “Alternative Medicine,” and consists of the terms “mainstream,” “unconventional,” “alternative medicine,” “medical schools,” “holistic,” and “coverage.” This frame is non-existent until 1988. In that year, the term “holistic” and the phrase “outside the mainstream” appear in a story about an acupuncture school, and the phrase “holistic therapies” appears in a story about a veterinarian clinic that uses acupuncture and other “holistic” therapies. The first use of the term “alternative medicine” appears in 1992, where it was used one time in a story about the NIH’s new Office for the Study

of Unconventional Medicine (now called the National Center for Complementary and Alternative Medicine). “Coverage” was also used for the first time that year in reference to the possibility that Clinton’s health care reform plan might cover alternative therapies such as acupuncture. In the mid-1990s, there are stories of states that require insurance coverage of CAM, HMO’s that offer CAM coverage, and companies that offer CAM coverage as a way to attract employees. In 1996, this frame appears in the story of the FDA’s approval of acupuncture needles, as well as in 1997, in stories about the NIH consensus panel’s endorsement of acupuncture. Both of these government actions are said to open the way for coverage of acupuncture by Medicare, Medicaid, and health insurance companies. Stories throughout the second half of the 1990s and up to 2002 deal with “alternative medicine,” its “holistic” approach, and its “unconventional” treatments in contrast to “mainstream” medicine. The “medical schools” term comes into play because of reports in many of these later stories that traditional Western medical schools are now offering CAM courses.

Question Three

Research Question Three asks:

Do historical milestones of diffusion precede or follow increases in the number of articles?

To answer this question, lines corresponding to the five milestones of diffusion were drawn and labeled on both bibliometric graphs: the one plotting separate counts for all three sources (Figure 14) and the one plotting the total of articles (Figure 15). It appears that significant increases in news media coverage occurred after or during the same year as two of the milestones: Reston’s acupuncture treatment and the NIH panel’s endorsement.

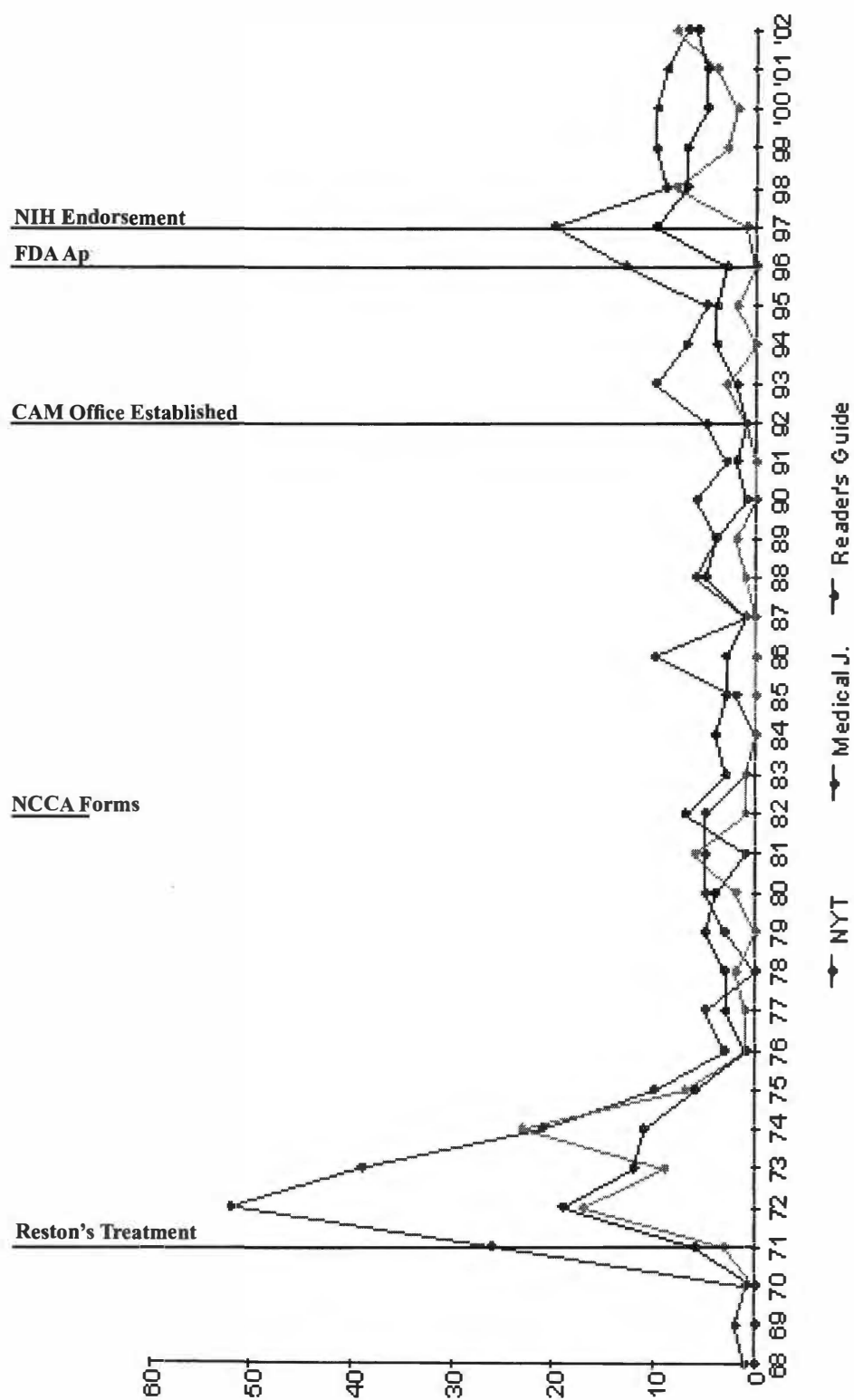


Figure 14. Graph of Bibliometric Counts with Markers for Milestones of Diffusion

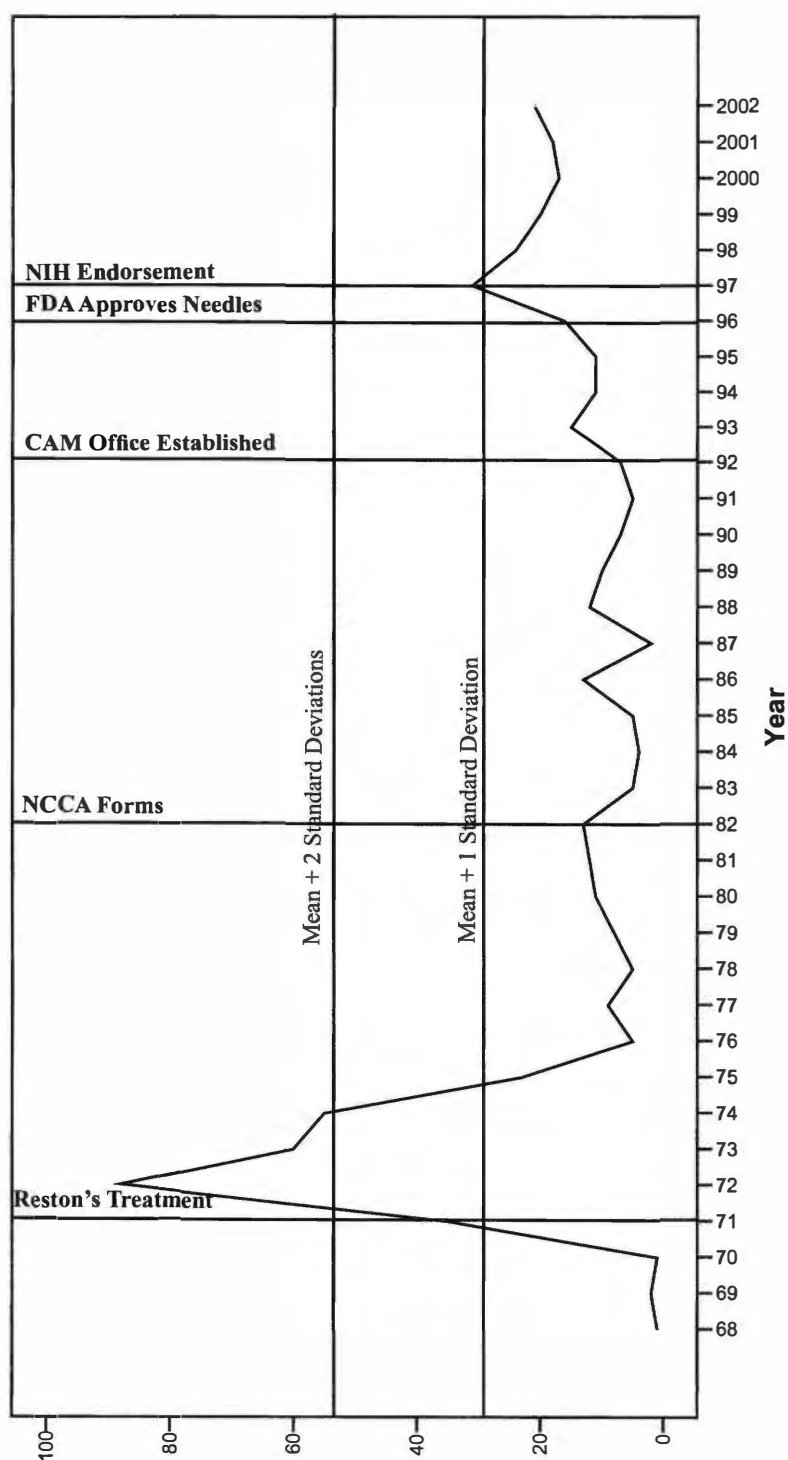


Figure 15. Graph and Descriptive Statistics for Total Number of Articles about Acupuncture from Bibliometric Count of Three Sources with Markers for Milestones of Diffusion

Question Four

Research Question Four asks:

Do historical milestones of diffusion precede or follow changes in framing?

To answer this question, the numbers and graphs for the occurrence of frame terms by year were inspected, as well as the notes about the meaning of the frames in context. Lines corresponding to each historical milestone were drawn and labeled on the bar graph for each frame (Figures 16 – 21). Lines denoting the same information were also drawn in Table 6. The VBPro coding procedure list of the number of times a term from each frame occurred in each of the 195 stories. The rows list each story by their case identification number, which includes publication date. The stories are in chronological order. Each column corresponds to one of the six frames and the numbers in the cells indicate the number of times any of the terms in that particular frame occurred in that story. In both the graphs (Figures 16-21) and Table 6, the years in which frame occurrence was high, low and non-existent were noted and compared to the lines corresponding to the years of historical milestones.

The “Reston” Milestone (7/19/71)

In 1971, New York Times columnist James Reston traveled to China with Secretary of State Henry Kissinger, who was preparing the way for Nixon’s ground-breaking trip the next year. During this trip, Reston suffered from acute appendicitis and had an appendectomy. After surgery, he received acupuncture which successfully relieved post-operative pain. After this event, the number of articles on acupuncture soared.

Examining Table 6 and Figure 16 reveals that, while there was one story in 1971 about

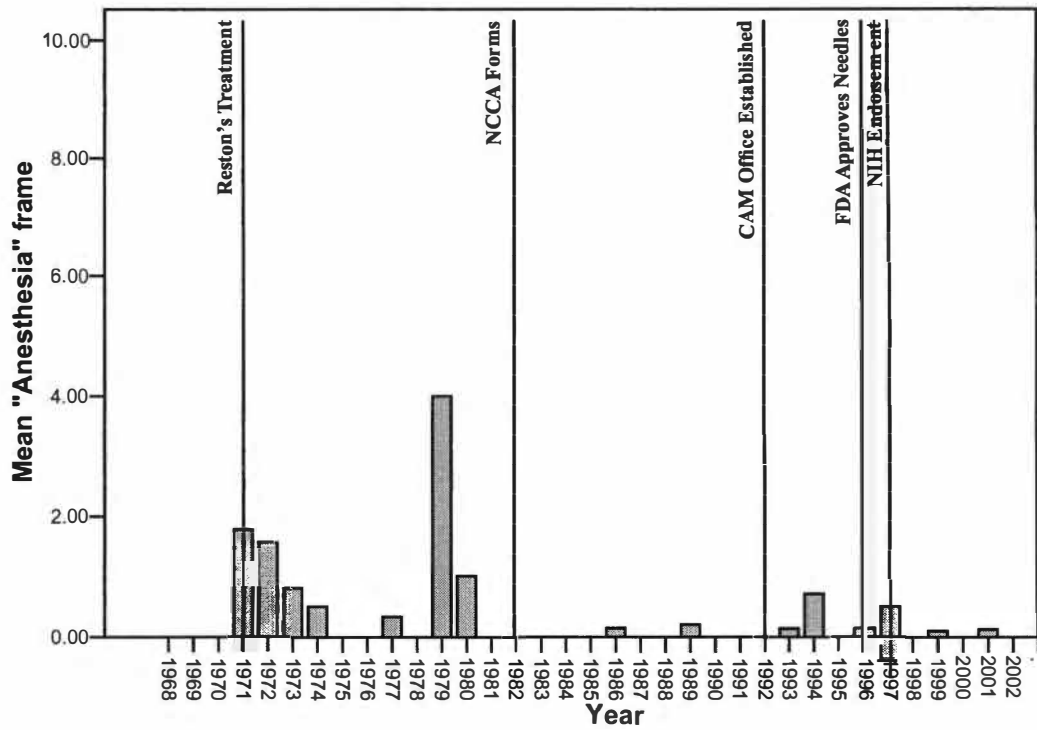


Figure 16. Graph of News Media Frame 1, "Anesthesia," with Markers for Milestones of Diffusion

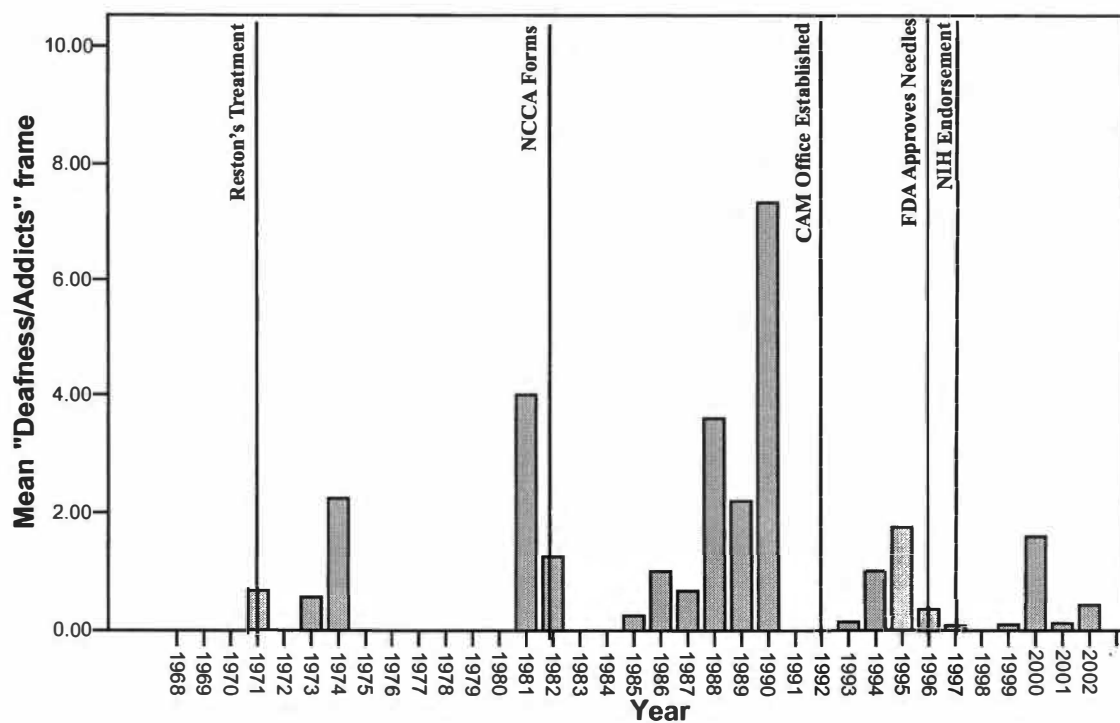


Figure 17. Graph of News Media Frame 2, "Deafness/Addicts," with Markers for Milestones of Diffusion

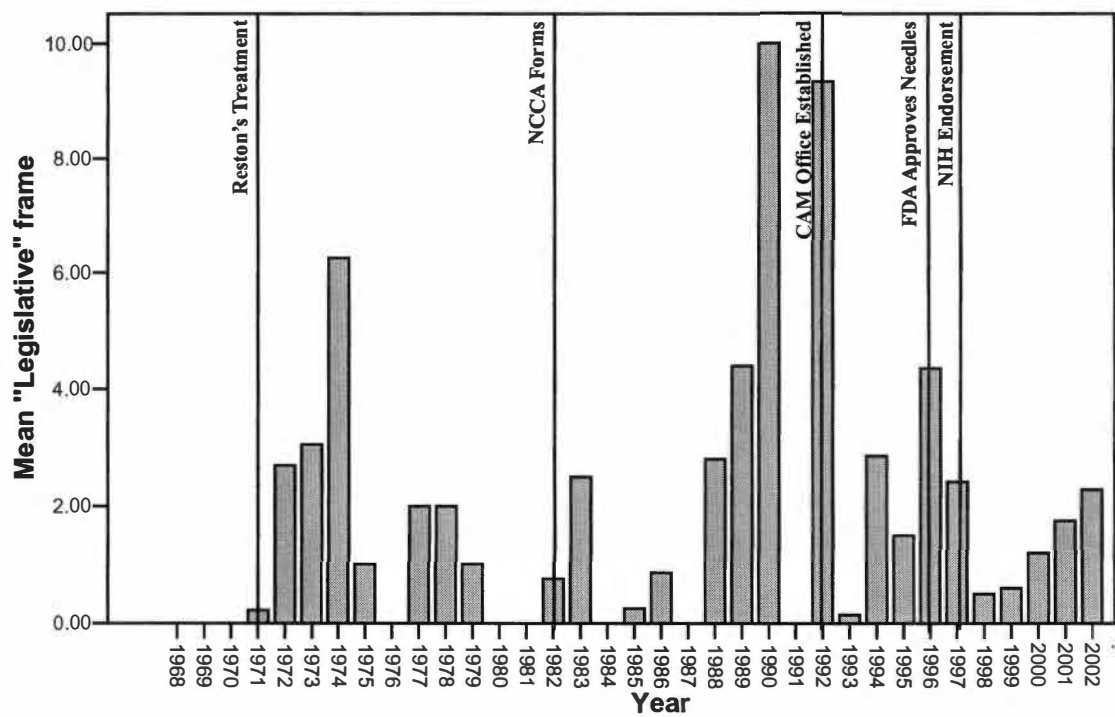


Figure 18. Graph of News Media Frame 3, "Legislative," with Markers for Milestones of Diffusion

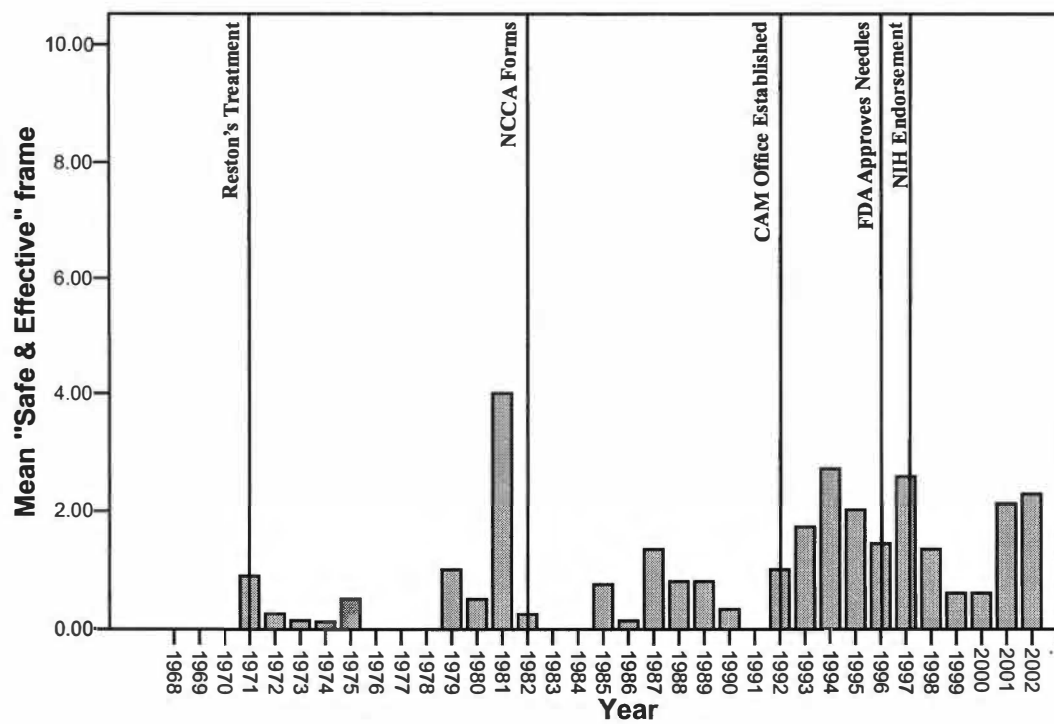


Figure 19. Graph of News Media Frame 4, “Safe & Effective,” with Markers for Milestones of Diffusion

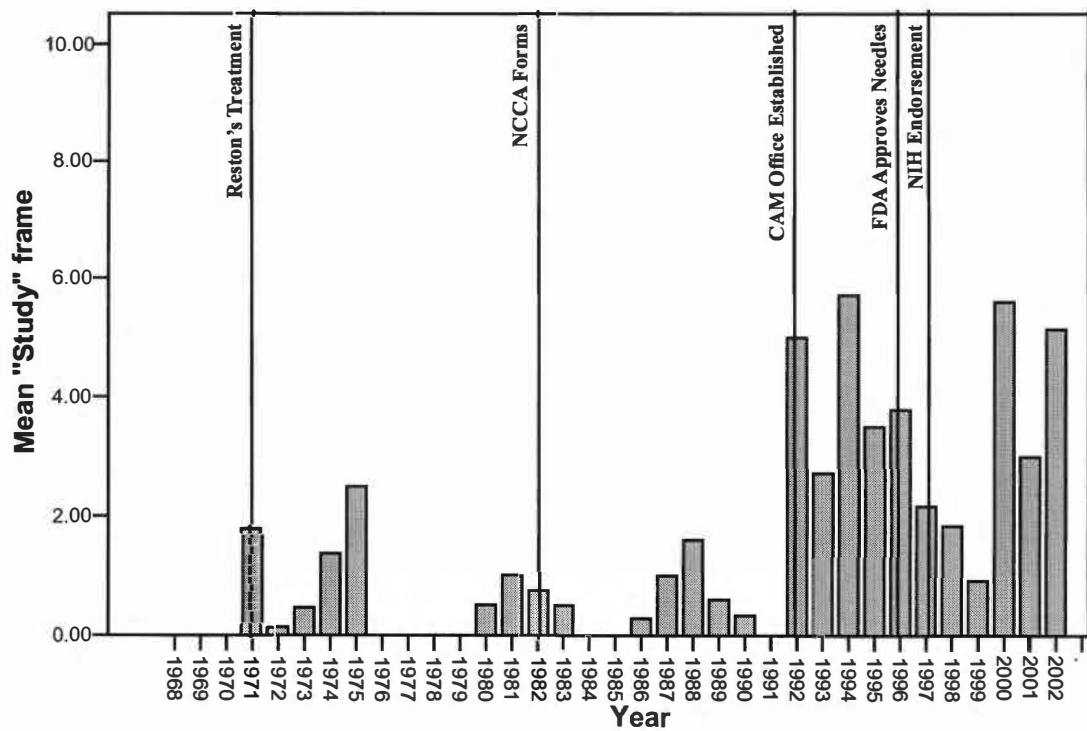


Figure 20. Graph of News Media Frame 5, "Study," with Markers for Milestones of Diffusion

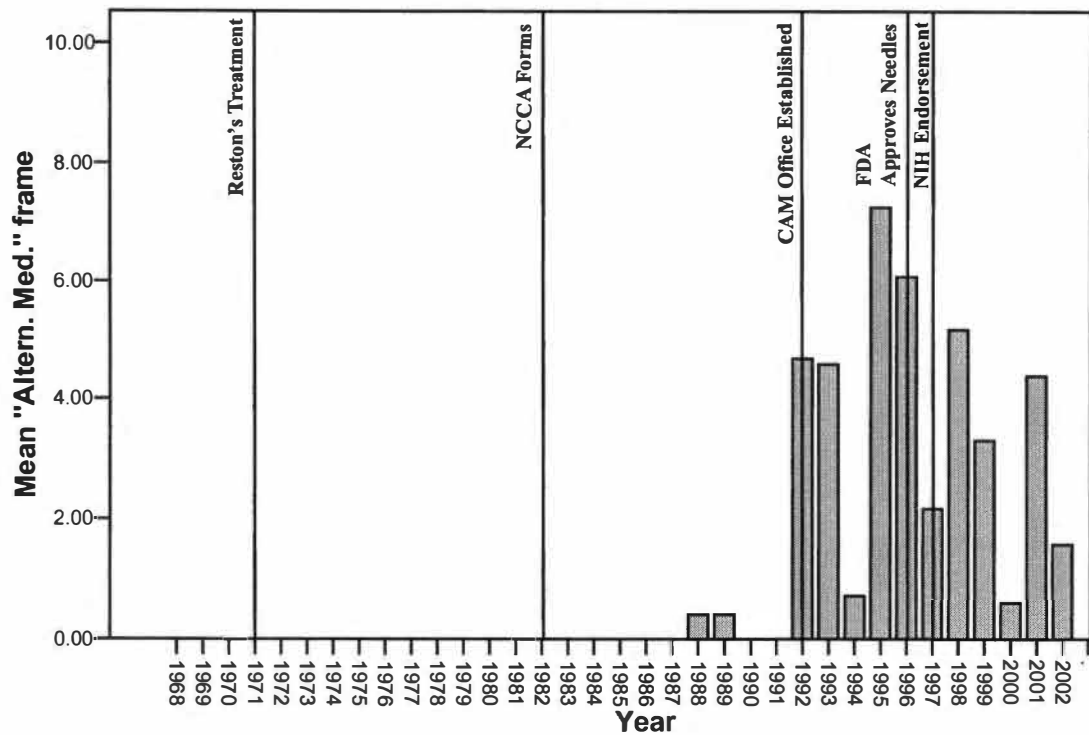


Figure 21. Graph of News Media Frame 6, “Alternative Medicine,” with Markers for Milestones of Diffusion

Table 6. List from VBPro's Coding Procedure Noting the Number of Times a Term from Each Frame Occurred in Each of the 195 Stories

Case ID #	Anesthesia	Deafness/ Addicts	Legislative	Safe & Effect.	Study	Altern. Med.
#001h11/10/68	0	0	0	0	0	0
#002h05/24/71	3	0	0	0	0	0
#003h07/4/71	0	3	0	1	0	0
Reston (7/19/71)						
#004h07/20/71	0	0	0	1	0	0
#005h08/13/71	0	0	0	0	0	0
#006h09/21/71	2	0	0	1	0	0
#007h10/07/71	6	3	1	3	9	0
#009h11/04/71	2	0	0	1	5	0
#010h12/04/71	2	0	0	1	1	0
#008h12/15/71	1	0	1	0	1	0
#013h03/24/72	0	0	0	1	0	0
#011h02/10/72	1	0	0	0	0	0
#014h04/02/72	0	0	0	1	0	0
#015h05/30/72	4	0	1	0	0	0
#016h05/31/72	2	0	1	0	0	0
#017h06/04/72	16	0	1	1	0	0
#018h06/12/72	9	0	0	0	0	0
#019h06/18/72	0	0	1	1	0	0
#020h07/02/72	1	0	0	0	1	0
#022h07/20/72	0	0	5	0	0	0
#023h07/23/72	0	0	1	1	1	0
#024h09/09/72	1	0	0	0	0	0
#025h09/13/72	2	0	0	1	1	0
#026h09/15/72	0	0	15	0	0	0
#027h09/19/72	0	0	1	0	0	0
#028h10/21/72	0	0	3	0	0	0
#029h11/12/72	0	0	2	0	0	0
#030h11/15/72	0	0	0	0	0	0
#031h11/19/72	0	0	3	0	0	0
#033h11/29/72	0	0	7	0	0	0
#034h12/5/72	0	0	4	0	0	0
#035h12/08/72	0	0	5	0	0	0
#036h12/28/72	0	0	12	0	0	0

Table 6. (continued)

Case ID #	Anesthesia	Deafness/ Addicts	Legislative	Safe & Effect.	Study	Altern. Med.
#037h01/04/73	2	1	2	0	0	0
#038h01/06/73	0	0	1	0	0	0
#040h01/07/73	0	0	0	0	0	0
#041h02/12/73	0	0	0	0	0	0
#042h02/13/73	1	0	0	0	0	0
#043h02/26/73	2	3	0	1	0	0
#044h03/02/73	1	0	0	1	2	0
#045h03/11/73	0	0	0	0	0	0
#046h03/13/73	1	0	8	0	2	0
#047h03/25/73	0	0	6	0	0	0
#048h03/30/73	0	0	3	0	0	0
#049h04/05/73	0	6	0	0	0	0
#050h04/10/73	0	0	5	0	0	0
#052h04/21/73	0	0	4	0	0	0
#053h04/22/73	4	0	0	0	0	0
#054h04/23/73	4	0	0	0	1	0
#055h05/13/73	0	0	30	1	3	0
#056h06/27/73	0	0	0	0	0	0
#059h09/21/73	0	0	0	0	0	0
#060h10/11/73	1	1	2	0	1	0
#065h04/21/74	1	1	16	1	3	0
#066h04/25/74	1	13	2	0	4	0
#068h05/07/74	0	0	1	0	0	0
#069h05/08/74	1	0	20	0	0	0
#070h05/28/74	1	4	0	0	1	0
#072h06/03/74	0	0	9	0	0	0
#073h06/18/74	0	0	1	0	2	0
#078h09/29/74	0	0	1	0	1	0
#079h01/02/75	0	0	0	0	0	0
#080h06/19/75	0	0	0	0	3	0
#019m07/21/75	0	0	0	2	6	0
#084h10/13/75	0	0	4	0	1	0
#135w02/09/77	0	0	5	0	0	0
#087h03/02/77	1	0	0	0	0	0
#132w12/30/77	0	0	1	0	0	0
#130w04/28/78	0	0	5	0	0	0
#131w01/20/78	0	0	0	0	0	0
#129w09/07/78	0	0	1	0	0	0
#091h01/14/79	0	0	2	0	0	0
#128w06/23/79	0	0	1	0	0	0
#092h11/25/79	12	0	0	3	0	0

Table 6. (continued)

Case ID #	Anesthesia	Deafness/ Addicts	Legislative	Safe & Effect.	Study	Altern. Med.
#206n07/18/80	2	0	0	1	1	0
#204n11/08/80	0	0	0	0	0	0
#202n03/15/81	0	0	0	2	0	0
#199n06/14/81	0	8	0	6	2	0
#196n03/14/82	0	3	0	0	0	0
#195n06/25/82	0	0	2	0	0	0
#017m07/26/82	0	2	1	1	1	0
#192n12/05/82	0	0	0	0	2	0
NCCA formed (1982, exact date unknown)						
#123w01/12/83	0	0	4	0	0	0
#122w12/03/83	0	0	1	0	1	0
#119w04/29/84	0	0	0	0	0	0
#116w01/24/85	0	1	1	0	0	0
#117w01/24/85	0	0	0	0	0	0
#114w07/10/85	0	0	0	0	0	0
#188n10/13/85	0	0	0	3	0	0
#187n01/22/86	0	0	1	0	0	0
#186n01/23/86	0	0	0	0	0	0
#112w01/23/86	0	0	1	0	0	0
#184n01/26/86	1	0	3	0	1	0
#181n08/12/86	0	0	0	0	1	0
#179n11/20/86	0	2	0	1	0	0
#180n11/20/86	0	5	1	0	0	0
#110w03/21/87	0	0	0	0	0	0
#109w10/06/87	0	0	0	4	2	0
#108w10/11/87	0	2	0	0	1	0
#106w07/12/88	0	0	0	2	0	0
#105w07/28/88	0	0	9	0	0	0
#104w08/11/88	0	1	1	0	2	2
#103w09/05/88	0	12	3	0	3	0
#171n09/30/88	0	5	1	2	3	0
#168n04/16/89	0	0	0	0	0	2
#167n09/05/89	0	1	0	2	2	0
#102w10/03/89	0	8	13	2	1	0
#101w10/05/89	0	2	9	0	0	0
#100w10/10/89	1	0	0	0	0	0
#099w02/09/90	0	0	12	0	1	0
#165n04/22/90	0	2	14	0	0	0
#098w05/08/90	0	20	4	1	0	0
#158n01/05/91	0	0	0	0	0	0

Table 6. (continued)

Case ID #	Anesthesia	Deafness/ Addicts	Legislative	Safe & Effect.	Study	Altern. Med.
#151n01/28/92	0	0	27	1	1	1
#095w06/16/92	0	0	0	1	1	0
Office for CAM, first meeting (6/17/92)						
#094w06/23/92	0	0	1	1	13	13
#090w01/28/93	0	0	0	3	9	14
#089w02/22/93	1	0	0	1	0	1
#139n03/16/93	0	0	1	3	7	11
#132n08/29/93	0	0	0	2	0	2
#088w08/29/93	0	1	0	3	3	4
#130n11/02/93	0	0	0	0	0	0
#130n11/02/93	0	0	0	0	0	0
#078w08/16/94	3	7	1	7	26	1
#079w08/16/94	0	0	0	1	11	0
#080w08/16/94	0	0	0	0	0	0
#081w08/16/94	0	0	11	0	0	0
#082w08/16/94	0	0	0	1	2	0
#115n11/06/94	2	0	8	1	1	3
#073w12/09/94	0	0	0	9	0	1
#112n05/02/95	0	0	0	0	0	0
#072w05/04/95	0	7	2	2	0	0
#110n07/31/95	0	0	0	1	0	0
#069w08/01/95	0	0	4	5	14	29
#105n01/03/96	0	0	11	1	4	4
#103n01/28/96	0	1	2	1	3	2
#101n02/25/96	0	0	0	0	1	4
FDA approves needles (3/29/96)						
#066w03/30/96	0	1	3	5	9	6
#065w04/11/96	0	0	0	0	0	1
#099n06/01/96	1	0	1	0	0	0
#098n06/17/96	0	0	10	6	9	33
#063w07/14/96	0	0	0	0	0	0
#095n08/04/96	0	0	1	0	4	5
#061w10/06/96	0	0	9	3	9	8
#060w10/08/96	1	3	2	3	6	4
#092n10/13/96	0	0	0	0	0	1
#091n10/13/96	0	0	15	1	8	1

Table 6. (continued)

Case ID #	Anesthesia	Deafness/ Addicts	Legislative	Safe & Effect.	Study	Altern. Med.
#087n11/24/96	0	0	7	0	0	16
#056w02/18/97	0	0	17	1	1	0
#054w04/01/97	0	0	0	1	2	7
#080n07/20/97	0	0	4	0	0	2
#079n07/27/97	0	0	0	0	0	0
#012m07/28/97	0	0	1	0	2	0
NIH Consensus Panel Endorsement (11/5/97)						
#071n11/06/97	0	0	1	6	2	1
#051w11/06/97	2	0	0	9	4	5
#069n11/8/97	0	0	0	1	1	1
#049w11/11/97	1	0	1	2	3	1
#063n11/18/97	1	0	3	4	6	2
#064n11/18/97	2	1	1	7	4	0
#056n12/30/97	0	0	1	0	1	7
#052n04/12/98	0	0	0	0	0	11
#051n04/28/98	0	0	1	4	5	3
#050n05/05/98	0	0	1	2	1	5
#049n08/18/98	0	0	1	1	1	4
#046n11/22/98	0	0	0	0	0	1
#011m11/23/98	0	0	0	1	4	7
#042w01/07/99	0	0	2	0	1	0
#043w01/07/99	0	0	0	1	0	1
#041w01/31/99	0	0	0	0	1	10
#042n03/02/99	0	0	0	0	0	0
#040w03/29/99	1	0	0	1	1	7
#039w04/14/99	0	1	1	1	1	0
#038w05/18/99	0	0	0	0	0	7
#033n12/01/99	0	0	0	0	0	0
#037w12/07/99	0	0	0	1	4	1
#032n12/26/99	0	0	3	2	1	7
#033w07/06/00	0	1	2	0	0	3
#032w08/14/00	0	3	0	0	2	0
#025n08/15/00	0	2	0	1	10	0
#030w09/26/00	0	2	4	0	1	0

Table 6. (continued)

Case ID #	Anesthesia	Deafness/ Addicts	Legislative	Safe & Effect.	Study	Altern. Med.
#029w12/27/00	0	0	0	2	15	0
#028w01/02/01	0	0	1	4	3	3
#027w01/15/01	0	0	0	1	1	0
#008m02/26/01	0	0	0	0	3	9
#026w03/06/01	0	1	13	0	0	12
#018n04/03/01	0	0	0	2	12	2
#023w05/01/01	1	0	0	3	1	1
#022w05/10/01	0	0	0	4	3	3
#016w10/02/01	0	1	0	3	1	5
#011n01/03/02	0	0	0	3	7	0
#010w03/12/02	0	0	9	3	8	1
#007n06/23/02	0	0	3	0	7	3
#002n11/18/02	0	0	1	0	0	1
#002m12/02/02	0	0	2	6	5	3
#003m12/02/02	0	2	1	1	4	0
#004m12/02/02	0	0	0	3	5	3

the use of acupuncture as anesthesia before Reston's treatment, the use of the "Anesthesia" frame increased significantly afterwards. In the one-year period before Reston's treatment, there is one story. In the one-year period afterwards, there are eleven stories, with terms from this frame used 45 times.

The "Study" frame begins after Reston, although it does not reach numbers as high as the "Anesthesia" frame. There are four stories and 16 occurrences of frame terms in the one-year period after this milestone. The "Legislative" frame also begins after Reston, but the number of occurrences of frame terms is only six in six stories during the first one-year period afterwards. However, in the second one-year period after Reston, there are 19 stories with 117 term occurrences. In the third one-year period, there are seven stories with 51 term occurrences. In conclusion, it appears that the Legislative and Study frames began after Reston and that the Anesthesia frame picked up significantly.

The "NCCA" Milestone (1982, exact date unknown)

The National Certification Commission on Acupuncture formed in 1982 to create national standards and a national exam. An examination of Table 6 and Figure 16 reveal that the "Anesthesia" frame became almost non-existent after the NCCA formed, although the trend away from the "Anesthesia" frame really began earlier. In 1971 and 1972 combined, there were 14 stories with 52 term occurrences. In contrast to this two-year period, in the nine years from 1973 to 1981, there were only 15 stories with 35 term occurrences. In the nine years after the NCCA formed, there were only two stories with two total term occurrences.

When examining the graph in Figure 19, it appears that the "Safe & Effective" frame was prominent in 1981, the year before the NCCA formed. However, a look at the numbers in Table 5 reveals that this jump in the mean number of term occurrence per story consists of two stories with eight terms. These numbers, along with the content of these two

stories, deem this perceived increase on the graph as insignificant. The first of these stories concerns the invention of a strap which exerts pressure on an acupressure point on the wrist to relieve nausea from pregnancy or seasickness. The second story is about a program in San Francisco where acupuncture is used to treat drug abuse. Both of these stories contain the terms “useful(ness)” and “effective” in the description of these new applications of acupuncture.

One last correlation in the NCCA milestone and frame changes is with the “Deafness/Addicts” frame. In 1985, three years after the NCCA formation, the cluster began for stories about acupuncture’s use in treatment of drug abuse. Such a change three years after the milestone might not seem like a significant correlation, unless one considers that it was in March of 1985 that the NCCA gave its first Comprehensive Written Examination in Acupuncture.

The “CAM Office” Milestone (6/17/92)

On November 22, 1991, Congress passed a bill sponsored by Sen. Tom Harkin (D-Iowa) which mandated the formation of an “Office for the Study of Unconventional Medical Practices” within the NIH. (The office’s name would later be changed to the Office of Alternative Medicine, and again to the Office of Complementary and Alternative Medicine. In 1999, the office gained the more independent designation of national center and is now called the National Center for Complementary and Alternative Medicine.) The date, June 17, 1992, was chosen as the milestone date because it marks the first meeting of the ad hoc advisory board and the event which first prompted the news media to write about the new office.

An examination of Table 6 and Figure 18 reveal a significant rise in the number of stories with “Legislative” frame terms in the three years before June 16, 1992 (notwithstanding the year 1991 in which there is only one story which contains no terms from this frame.)

The “Legislative” stories during these three years are mostly concerned with local and state government’s use of acupuncture in their fight against drug addiction. In 1992, one story with 27 “Legislative” terms is about New York state’s relaxation of requirements for acupuncture licenses.

The CAM office milestone correlates strongly with three additional frames. The “Study” and “Safe & Effective” frames have their strongest and most sustained periods (in fact continuing to the end of this study) beginning in 1992. The CAM office milestone also marks the real beginning of the “Alternative Medicine” frame, which only had five term occurrences in the 24 years before 1992. One other possible correlation with the CAM office milestone is with the “Deafness/Addicts” frame. This frame occurs in the cluster of stories about local and state governments’ use of acupuncture in treating drug addiction between 1985 through 1990. Although this cluster ended in 1990, two years before the CAM office milestone, it was only a year before Harkin’s bill was passed in 1991.

The “FDA Approves Needles” Milestone (3/29/96)

On March 29, 1996, the FDA classified acupuncture needles as medical devices for “general use” by trained professionals. The team of lawyers and acupuncturists that made the request in 1994 had submitted “scores of scientific studies” to bolster claims that acupuncture was a “safe and effective” treatment for a list of ailments (Weiss, 1994, p. Z-10). An examination of the graphs in Figures 16-21 reveal little relationship between the FDA milestone and any frame changes. However, Table 6 reveals a jump in the “Legislative” frame in the one-year period after the FDA’s decision. In the one-year period before March 29, 1996, four stories contained a total occurrence of 19 “Legislative” frame terms. In the one-year period after this date, nine stories contained 65 occurrences.

The “NIH Endorsement” Milestone (11/05/97)

On November, 05, 1997, a panel of scientists convened by the National Institutes of Health issued a consensus statement after having reviewed existing acupuncture studies that met criteria for “well-designed research” (Weiss, 1997, p. A-1). They concluded that there was “clear evidence” that acupuncture is an effective treatment for pain following dental surgery and for nausea and vomiting caused by pregnancy, surgical anesthesia, and cancer chemotherapy drugs. They said that there was weaker evidence that acupuncture might be effective for some other conditions including stroke, drug addiction, and some involving pain such as fibromyalgia, and tennis elbow. The chairman of the panel is quoted as saying that acupuncture “has fewer side effects and is less invasive than other things we (doctors) do” and that “it’s time to take it seriously” (Weiss, 1997, p. A-1).

The only frames that appear to change before or after this milestone are the “Safe & Effective” and “Legislative” ones. “Safe & Effective” increases slightly in the two-year period immediately following November 5, 1997. The number of stories in this two-year period preceding the NIH endorsement is nine with a total of 22 term occurrences. The number of stories in the two-year period following is nine with 36 term occurrences. The “Legislative” frame appears to decrease after the NIH consensus milestone. In the two-year period prior to November 5, 1997, there are 11 stories with 83 “Legislative” term occurrences. In the two-year period following, there are ten stories with 13 term occurrences.

A summary of changes in frames as related to acupuncture’s milestones of diffusion is listed in Table 7.

Table 7. Framing Changes in News Media Coverage of Acupuncture as they Relate to Milestones of Diffusion

	Frame	Increase or Decrease	After or Before
Reston Milestone (July 19, 1971)	“Anesthesia”	Increase	After
	“Study”	Increase	After
	“Legislative”	Increase	After
NCCA Milestone (1982)	“Anesthesia”	Decrease	After
	“Deafness/Addicts”	Increase	After
CAM Office Milestone (June 17, 1992)	“Legislative”	Increase	Before
	“Deaf/Addicts”	Increase	Before
	“Safe & Effective”	Increase	After
	“Study”	Increase	After
	“Alternative Med.”	Increase	After
FDA Approval Milestone (March 29, 1996)	“Legislative”	Increase	After
	“Safe & Effective”	Increase	After
NIH Endorsement Milestone (Nov. 5, 1997)	“Legislative”	Decrease	After
	“Safe & Effective”	Increase	After

CHAPTER FIVE: DISCUSSION

This study examined two aspects of news media coverage: the amount of coverage and framing. It looked at how these changed during the early diffusion of the innovation acupuncture and at how these changes corresponded to milestones representing major advances in diffusion at the societal level.

Questions One and Three

Research Question One asks:

How has the number of articles concerning acupuncture in the national print news media and medical journals changed over time?

Research Question Three asks:

Do historical milestones of diffusion precede or follow changes in framing?

An examination of the bibliometric counts measured by the mean plus one standard deviation reveals two significant peaks in coverage over the 35-year period. The first and largest occurs in the years 1971-1974 and followed Reston's acupuncture treatment with an average of 59.5 articles per year. The second peak occurred in the 1997, the year an NIH panel endorsed acupuncture for certain ailments. The number of articles that year was 31.

The bibliometric counts, along with the dates of the milestones, indicate Reston's acupuncture treatment as a "trigger event" as written about in agenda-setting literature (Dearing & Rogers, 1996). There was a slight increase in articles in the first half of 1971, most likely because of increased media interest in China and Chinese culture after Nixon announced his plans to visit China. However, the peak in coverage does not occur until

after Reston's treatment on July 19. It is interesting to note that the Reston event involved two factors researchers have found most influential in media agenda-setting: the *New York Times* and a "trigger event."

The significant increase in the amount of coverage after the NIH panel's endorsement in 1997 seems to support what has been found in many agenda-setting studies concerning policy. As Kingdon (1995) said, "the media report what is going on in the government, by and large, rather than having an independent effect on government agendas" (pp. 58-59).

In summary, in the diffusion of acupuncture, Reston's acupuncture treatment while traveling with Kissinger was the "trigger event" that put the subject on the media agenda for an initial four-year period. It appears that in the case of acupuncture, the news media, triggered by the Reston event, introduced this innovation to American culture. In the 1990s, the media did not lead the way in advancing the diffusion of acupuncture. In contrast, it appears from the bibliometric count that the media followed by writing more stories about acupuncture in response to action by the federal government -- the NIH endorsement.

Question Two

Research Question Two asks:

How has the framing of acupuncture in the national print news media changed over time?

Over the past 35 years of acupuncture's diffusion in this country, it has been framed in many ways in the news media. This study discovered six major news media frames and confirmed Reese's (2001) assertion that frames do evolve over time. The framing in this study evolved in two ways. The prominence of the six selected frames themselves changed

over time. Also, the themes that the terms in each frame group were used to describe evolved over time. For example, in the 1970s, the group of terms in the frame “Legislative” were mainly used to describe state’s legal and legislative deliberations about who could practice acupuncture and the licensing of acupuncturists. In the 1990s, these same terms were used to mainly describe acupuncture licenses and state licensing programs that already existed, as well as federal laws and legislation related to complementary and alternative medicine. Such variations within frames are detailed in the Results Chapter. It is difficult to get a full picture of the various forms of the six frames as they changed over the 35-year period. To better facilitate their comprehension and analysis, they were listed in Table 8. Also, in this table, three phases of news media framing are identified. The first framing theme occurs in the 1970s and is called “Introduction.” In the 1980s, the phase is “Unmet Need.” The third framing phase occurred from 1990-2002, and the theme is “Legitimacy.”

In the 1970s, the overriding theme in all the frame variations might be summed up as “Introduction.” This can be further divided into the subthemes “Uses,” “Regulation,” and “Caution and Skepticism.” The “Uses” subtheme involves stories that introduce the public to some of the more straight-forward uses or applications of acupuncture, which mostly focus on anesthesia, deafness and pain relief. These stories often contain dramatic words or images. For example, words like “amazing” and “miracle” are used. Also, anecdotes include patients drinking juice while anesthetized with acupuncture during open heart surgery, a man who no longer needs a number of braces and crutches after a few treatments, and people in demonstrations who, after only one treatment, are relieved of chronic pain they had suffered for years.

A second subtheme of the “Introduction” phase involves the “Regulation” and legislation of this innovation. Acupuncture had been practiced for more than 100 years in the Chinatowns of America. However, it wasn’t until acupuncture became recognized in

Table 8. Various Forms of the Six Frames Regarding Acupuncture Contained Within the Three News Media Framing Phases

1970s	1980s	1990-2002
Theme: "Introduction"	Theme: "Unmet Need"	Theme: "Legitimacy"
ANESTHESIA. Dramatic.	DEAFNESS/ADDICTS. Used in addiction treatment programs in big cities. (1985-1990)	ANESTHESIA. NIH panel endorsed acupuncture to treat side effects of chemical anesthesia. (1996-2002)
DEAFNESS/ADDICTS. Used to cure nerve-deafness (1971-1974)	LEGISLATIVE. States and local governments using acupuncture to help address addiction problem. (1985-1990).	DEAFNESS/ADDICTS. Acupuncture's use to treat addiction as part of larger stories about alternative medicine, the FDA's approval of needles and the NIH's Office of CAM. (1993-2002)
LEGISLATIVE. Practice of acupuncture limited to licensed physicians in some states, only with supervision of licensed physicians in others. (1972-1979)	SAFE & EFFECTIVE. Useful and effective for drug addiction.	LEGISLATIVE. Federal legislation.
LEGISLATIVE. Legislation and hearings concerned with the licensing of acupuncturists. (1972-1979)	STUDY. Studies of effectiveness for addiction.	LEGISLATIVE. Advise to choose a "licensed" acupuncturist; tone is one of credibility.
LEGISLATIVE. NY State Advisory Commission on Acupuncture.	ALTERNATIVE MEDICINE. Terms "holistic" and "outside the mainstream" appear for the first time. (1988)	STUDY. Many studies examined in process of FDA's approval of needles and NIH panel's endorsement.
SAFE & EFFECTIVE. Useful and effective for pain.		STUDY. Studies of acupuncture and other CAM therapies conducted or funded by the NIH Office of CAM.
SAFE & EFFECTIVE. Concern about safety.		ALTERNATIVE MEDICINE. First use of the term "alternative medicine." (1992)
STUDY. More study of acupuncture needed.		ALTERNATIVE MEDICINE. Possible and actual coverage of acupuncture by private and government health insurance programs.
STUDY. Effectiveness caused by placebo effect.		ALTERNATIVE MEDICINE. Federal government action: NIH Office of CAM established, FDA approval of needles, NIH panel endorsement. (1992-2002)
		ALTERNATIVE MEDICINE. Complementary and alternative medicine (1992-2002).

mainstream America that there was an attempt to limit and regulate its use. In 1992, stories began to appear regarding who could legally practice acupuncture. These stories in the 1970s focused mainly on the state level, a few on the local level.

A third aspect of the “Introduction” phase in the 1970s was “Caution and Skepticism” of the unknown. Stories contain concerns for safety and calls for more study. Several stories contain accounts of doctors or scientists discrediting acupuncture, several of them attributing its effects to the placebo effect or even hypnotism.

The stories in the 1970s do not attempt to outline the complex system of Traditional Chinese Medicine (TCM), of which acupuncture is a part. There is the mention in many stories that the Chinese believe acupuncture works by balancing qi -- energy that flows through channels called meridians. But they do not go into aspects such as pulse and tongue diagnosis, classical TCM causes of disease such as “invasion of wind and heat obstructing lung qi” or “depleted liver yang.” Rogers (1995) says that one cannot deal with an innovation except on the basis of the familiar. Reporters in the 1970s wrote about acupuncture from the familiar viewpoints of its straight-forward uses, the attempts to regulate its practice, and skepticism and caution towards it as an unknown.

The most prominent theme in the stories of the 1980s is acupuncture’s use in treating drug addiction. Drug addiction, especially to heroin and crack cocaine, was a major social concern at the time, especially in big cities. They were “desperate” to try anything (McCall, 1989, p. B-1). Acupuncture became part of drug addiction programs in several cities including San Francisco, New York, Baltimore, and Washington, D.C. Studies were conducted into its effectiveness for this purpose.

In the broader context of diffusion theory, the addiction theme is one of using the innovation for an “Unmet Need.” Rogers says that with an innovation coming from outside the culture, such as acupuncture, “members of a social system... adopt or reject

a new idea from that source *on the basis of their needs*” (1971, p. 9, emphasis added). If acupuncture met only those needs which were already satisfactorily met to a high degree of satisfaction by traditional Western medicine, it is highly unlikely that it would have been adopted here.

In the 1990s and up to 2002, the overriding theme is “Legitimacy.” During this period, news media coverage of three positive moves by the federal government give acupuncture legitimacy that it did not have before. An NIH office for complementary and alternative medicine is established, the FDA approves needles, and an NIH panel gives its endorsement.

Other news media framing that gave legitimacy in the 1990s includes the following: The term “licensed acupuncturist” is used frequently and with a tone of credibility. Actual and potential coverage by various insurance programs is discussed or included in many stories. “Studies,” a word associated with science and legitimacy in our culture, is mentioned frequently in regard to acupuncture. The phrase “safe and effective” is used frequently in reference to acupuncture. Acupuncture is included in part of the larger CAM trend sweeping the country. The legitimacy in the media framing after the federal government actions in the 1990s points to what several framing scholars have said. The media “tend toward using frames which support the... ruling interests of society” (Nomai & Dioisopoulos, 2002). The legitimacy of acupuncture increased in news media framing after the federal government took actions signaling its legitimacy.

It is interesting to note how the use of two terms, “placebo” and “anesthesia” change from the 1970s to the 1990s. In the 1970s, the term “placebo” is mainly used to explain the mechanism by which acupuncture might work. In the 1990s, the term is usually used in stories about research and pertains to attempts by researchers to include a placebo group in the study. The term “anesthesia” in the 1970s refers to acupuncture used

as a surgical anesthesia, which is often portrayed as somewhat of a miracle. In the 1990s, the term is used to refer to acupuncture's use in treating the nausea that is a side effect of drug anesthesia. Apparently, the use of acupuncture as surgical anesthesia works on the majority of people, however, this use was not adopted on a widespread basis in the United States.

Question Four

Research Question Four asks:

Do historical milestones of diffusion precede or follow changes in framing?

As was noted in the discussion on Question Three, it appears that Reston's treatment was the "trigger event" that sparked the media's coverage of acupuncture. The first frame the media focused on after Reston's treatment was the "Anesthesia" frame. It makes sense that the media would focus on this application of acupuncture. Anesthesia acupuncture is tangible, easily demonstrated, and dramatic. Also, the results are immediate and objective. It is of interest that this application had been written about once before the Reston milestone, on May 24, 1971, in the *New York Times*.

It is logical that following the introduction of a dramatic, exogenous medical innovation, there would be calls for its study and also that attempts to regulate it would ensue. Both of these frames, "Study" and "Legislative," began after the Reston milestone. The "Study" frame began almost immediately, and the "Legislative" frame began in earnest about a year later.

The next milestone is the formation of the NCCA in 1982. The "Anesthesia" frame became almost non-existent after this date, although the trend away from it had begun in 1974. A view of this frame in context reveals no explanation. There was no significant

study that discredited the usefulness of acupuncture as anesthesia. In fact, in a few stories in the 1990s, there are brief mentions of acupuncture's use as anesthesia. There were some reports in the early 1970s that acupuncture is not always 100 percent effective and that it doesn't work on 100 percent of patients. If this is true, widespread use of acupuncture anesthesia might have been rejected, in spite of fewer negative side effects, because chemical anesthesia is more reliable and less time consuming. As Rogers (1971) said, a society adopts or rejects the innovation "on basis of their needs" (p. 9). Western medicine already had a reliable, effective anesthesia.

Frame Two, "Deafness/Addicts" increases after the NCCA formation. In 1985, three years after its formation, the cluster of addiction stories begins, although there were three addiction stories total in 1981 and 1982. Three years may seem like too long a period of time for a correlation to exist until one considers that it was March 1985 that the NCCA gave its first Comprehensive Written Examination in Acupuncture. Could it be possible that the NCCA formation and resulting uniform national standard and exams contributed to cities viewing acupuncture as a credible treatment to explore in their struggles against drug abuse? However, if this was the case, city officials most likely would have learned about such standards and exams from sources other than the media because the media did not cover the NCCA milestone.

The largest number of frame changes in this study come before and after the 1992 CAM office milestone. Increase in the "Legislative" and "Deafness/Addicts" frames before this milestone can be attributed to the cluster of addiction stories that occur between 1985 and 1990. Any significance between this cluster and the CAM office milestone might seem remote because the cluster ends in 1990, two years before the milestone. However, it is interesting that the congressional bill mandating the CAM office passed in 1991. One hypothesis is that the addiction coverage in the 1980s contributed to the legitimacy of

“alternative medical practices” in the minds of the members of Congress who voted for it.

The “Study” frame increases after the CAM office milestones as federal money is made available for studies of complementary and alternative medicine, the need for more study of CAM is noted, and past studies are examined in an attempt to understand CAM. The “Alternative Medicine” frame really begins with this milestone. It appears that this frame, one that has become a part of American culture over the past 10 years, was birthed, at least in the media in this study, by the establishment of the NIH office for CAM .

The “Legislative” frame increases both after the CAM office milestone and after the FDA approval milestone. A review of this frame in context does not reveal any significant reason for this increase. The cause seems to be an increase in stories about CAM. These include mention of related federal legislation, frequent mention of licensed acupuncturists and other licensed CAM practitioners and of the fact that it is the states that grant such licenses, and of state laws concerning the regulation of CAM practitioners and requirements for coverage by insurance plans.

The “Safe & Effective” frame also increases after the CAM office milestone. In fact, it increases after each milestone in the 1990s. It seems that the media increasingly describe acupuncture as effective, useful and safe with each government action these milestones represent.

Nelkin (1989) said that, with health issues, the media can have an impact on the “nature of regulation, the cause of litigation, or the direction of research and development” (p. 54). Andsager and Powers (1999) state that “framing impacts public understanding and, consequently, policy formation” (p. 533). In the case of acupuncture, it can be observed how the media’s framing most likely impacted regulation and policy formation in the 1970s. The media, triggered by Reston’s treatment, presented the American public with a dramatic new way to anesthetize, cure deafness and relieve pain. It appears that this

media attention, and the assumed public interest that followed, spurred state governments to address regulation of and policy concerning acupuncture. (Remember, prior to the Reston event, acupuncture had been practiced for at least 100 years in the Chinatowns of this country with no government regulation.)

The media's coverage in the 1980s of the use of acupuncture for drug addiction may also have had an impact on public policy. It is possible that such coverage contributed to the passage of the bill mandating the CAM office by influencing policy elites regarding the credibility of alternative therapies.

In the 1990s, the media did not lead the way in exposing the trend in the growth of CAM. They wrote very, very little about holistic medicine or alternative therapies until after the federal government established the CAM office. However, after this event, coverage of the subject was significant and mostly positive. It is possible that such coverage contributed to the FDA's approval of needles in 1996 and then the NIH's decision to convene a panel on acupuncture in 1997 and on the panel's subsequent endorsement.

In summary, it appears that Reston's acupuncture treatment was the "trigger event" that created the large amount of media attention in the early 1970s. It appears that it was the media during this period that introduced American culture to this innovation. It appears that the large amounts of media coverage may have spurred state governments to address the regulation of acupuncture. If so, it was the media setting the policy agenda.

In the 1980s, news media framing focused on the use of acupuncture to treat drug addiction, often as part of programs offered by big city governments. The cluster of addiction stories precedes the passage of the bill mandating the NIH office for CAM. It is possible that the addiction stories contributed to the passage of the bill by giving credibility to alternative therapies.

There is no coverage of alternative medicine until after the NIH CAM office

is established. In this case, the media followed; the federal government set the media agenda. Two frames that significantly increase after the CAM office milestone are “Safe & Effective” and “Study.” Both are mostly positive in the 1990s, giving additional credibility to acupuncture. It is possible that the increased and positive coverage of acupuncture that followed the establishment of the CAM office contributed to the FDA’s approval of needles in 1986 and to the NIH’s decision to convene a panel and its subsequent approval in 1997. If so, this would be a case of the media influencing the policy agenda. In any case, the “Safe & Effective” frame increases after each of the three milestones in the 1990s, all of which involve positive government action either involving acupuncture or CAM in general. In most likelihood, the influence is circular. Government action contributes to positive media coverage and positive media coverage contributed to positive government action. As Dearing and Rogers (1996) wrote, with the policy agenda, “circularity of influence is a consistent finding” (p. 87).

CHAPTER SIX: CONCLUSION

This study examined how the amount of news media coverage and media framing changed as the innovation acupuncture became increasingly diffused in American culture. It also looked at agenda-setting by examining whether such changes in media coverage usually preceded or followed major advances, or milestones, in the diffusion process.

This study concluded that both the amount of coverage and framing of acupuncture changed significantly over the course of diffusion and that the media sometimes led and sometimes followed in the diffusion process. There were two significant peaks in amount of coverage over the 35 years. The first and largest occurred during the early 1970s and began with the “trigger event” of *New York Times* columnist James Reston receiving a successful postoperative acupuncture treatment while traveling in China with Kissinger. It appears that this “trigger event” set the media agenda in the 1970s, and that the media was instrumental in introducing acupuncture to the American public. It also appears that the media helped to set the policy agenda for many states, which began taking regulatory and legislative action concerning acupuncture about one year the peak in coverage began. The second peak in amount of coverage occurred in 1997, the year an NIH panel endorsed acupuncture for certain conditions. In the 1990s, it appears that the media agenda followed the federal government’s policy agenda.

Framing changes in the news media coverage of acupuncture most often followed milestones of diffusion, and they almost always involved an increase in or sometimes the beginning of a particular frame. The most notable examples follow: The frame involving the study of acupuncture and the frame involving its regulation and legislation both began shortly after Reston’s treatment. The “Alternative Medicine” frame began with the establishment of an NIH office to study complementary and alternative medicine. A frame involving the safety, effectiveness and usefulness of acupuncture increased incrementally

after each of the three positive actions by the federal government in the 1990s. There was one notable case when frame changes occurred before a milestone. In the late 1980s and in 1990, the media focused on the use of acupuncture in drug addiction programs. This focus may have possibly had an influence, by increasing acupuncture's credibility with policy elites, on the passage of legislation in 1991 which mandated the establishment of an NIH office to study complementary and alternative medicine.

This study also found that framing evolved in such a way that three phases of media coverage could be identified. The first, which occurred in the 1970s, is the "Introduction" phase. The stories contain themes that might result from the introduction of any innovation and include the subthemes "Uses," "Regulation," and "Caution and Skepticism." The second phase, which occurred in the 1980s, is named "Unmet Need" because the stories involve experimentation with using the innovation, acupuncture, to treat drug addiction, a need that was not being satisfactorily met by Western medicine at the time. The third, the "Legitimacy" phase, occurred in the 1990s. In this phase, the media frame acupuncture with a legitimacy that they did not give to it before. This is attributed to the positive actions toward acupuncture taken by the federal government coupled with the media's tendency toward supporting the ruling interests of society.

Overall, it appears that the media led the way in introducing acupuncture to mainstream American culture in the 1970s. During this time, it focused on themes logical for any society trying to understand a new innovation: its uses, its regulation, and caution and skepticism toward an unknown. Although there was a small and possibly influential cluster of stories in the late 1980s and in 1990 that focused on the use of acupuncture in addressing the unmet need of treatment for drug addiction, acupuncture was not a significant topic again until 1993. In the 1990s, the media followed the federal government's lead in the diffusion process. The amount of coverage increased after an endorsement by the NIH. Also, media framing became more positive in response to each of three legitimizing actions by the federal government in the 1990s.

This Study's Contribution

This study uniquely contributes to the communications literature in several ways. First, it is one of the only studies, to date, to examine changes in news media coverage over the course of the diffusion of an innovation. In doing so, it proposes phases of media coverage that may apply to other innovations at the macro level: "Introduction," coverage of the innovations use for "Unmet Needs," and "Legitimacy." Furthermore, it is one of the few studies to examine agenda-setting and news media framing during the process of diffusion of an innovation.

Limitations of This Study

One of the most obvious limitations in this study is that the analysis was limited to the *New York Times*, *The Washington Post* and *Newsweek*. The inclusion of a more print sources as well as radio and television sources may have produced different results.

A second limitation involves the use of computer-assisted content analysis. A significant advantage of this form is that it allows for the analysis of larger amounts of text without the need for sampling. However, because it depends on exact words, some of the more subtle aspects of framing can be lost. For example, in this study, many of the early stories contained a similar tone that might be summed up as "miraculous." However, because the words that conveyed this tone varied in the articles from "amazing" to "miraculous" to "astonishing," this is not a frame this form of content analysis could pick up. Another example of this limitation is with the tone and message painted by anecdotes. These often rely on the narrative itself and not on any particular group of words. A third example of the limitations of computer-assisted content analysis is the use of affirming or negating words that can occur with key terms. For example, words such as "relief" or "success" are

used to convey the positive results of acupuncture. However, these words coupled with the qualifiers “no” or “without” completely change meaning. Another problem is with the large number of words in the English language that have several meanings. Some of these words may convey important frames but have to be eliminated from consideration because they are too ambiguous in context. If all or most of the words forming a particular frame are as such, that frame may be missed. Examples of such words include “hearing” used to describe a sense involving the ears and also a meeting where testimony on a topic is heard. Another is “board” which can describe a cut piece of wood or a group of people designated with an official task.

A third limitation of this study is the subjectivity involved. Despite the increased objectivity that comes with computer-assisted content analysis as opposed to qualitative analysis, there were subjective choices that were made. For example, choosing the list of 125 terms to submit for the production of the original dendrogram was subjective. The choice to combine certain words and phrases was subjective. The selection of frames and frames terms from the final dendrogram based on an inspection of these terms in context was a subjective one. Several researchers have noted that even quantitative framing analysis involves a level of subjectivity that can be troubling (Entman, 1993; Hallin 1994). In spite of this weakness, framing analysis is a beneficial tool in communications research.

Recommendations for Future Research

This study is the one of the few thus far to look at the way news media coverage changes as an innovation progressively becomes diffused and accepted in a society. This study identified a pattern of phases in the news media framing of acupuncture: The first is “Introduction,” which includes the subthemes “Uses,” “Regulation,” and “Caution and

Skepticism.” The second phase is “Unmet Need,” and the third is “Legitimacy.” Further study is needed to analyze the news media framing of other innovations to determine if similar phases exist. An attempt should be made to determine if news media framing of innovations moves through somewhat predictable phases over the course of diffusion. One scientific innovation that seems to be following a similar pattern is cloning. A peak in coverage seems to have been triggered in 1997 by the announcement of the first cloned adult mammal, a sheep named Dolly. Since then, much of the media coverage seems to have focused on the three subthemes in the Introduction phase outlined in this study.

Both qualitative and quantitative content analysis have their limitations. Given this fact, a qualitative content analysis of the same news stories as the ones in this study would shed light on some of the specific strengths and weaknesses of both. Also, a qualitative analysis of the acupuncture articles might reveal subtleties in framing missed in the quantitative method.

This study limited its focus on the diffusion of acupuncture to the content in news articles. Part of a reporter’s framing process involves the winnowing and weeding of the “glut of information” (Tuchman, 1978, pp.12-13) that exists in the real world. An analysis of the events and processes going on in the real world would shed some light as to the frames *not* covered by the media. It would also hopefully reveal factors other than the media that influenced the diffusion process. From conversations with politically involved acupuncturists, as well as from a scan of other articles and websites about acupuncture, it appears that much of the influences on diffusion occurred behind the scenes and were not covered by the general news media. For example, throughout the 1970s and 1980s, a group called the New York Society of Acupuncture for Physicians and Dentists “led the effort to legitimize acupuncture, lobbying politicians to pass legislation governing the practice” (Hoh, 1998, p. 48). Also, apparently in the 1990s, a big part of acupuncture’s continued diffusion and attempts for greater legitimacy has involved a political struggle to

ensure that the discipline is well represented at the National Center for Complementary and Alternative Medicine.

Additionally, a study of acupuncture in the “real world” over the past 35 years might reveal the stakeholders and their attempts to influence framing in the media. Such a study should include interviews with people who were stakeholders at various points in time in the diffusion process. It could also involve an analysis of the written materials from organizations involved in the process over the years.

Several computer-assisted content analysis studies in the past have focused on opposing stakeholder and their attempts to influence framing in news media content. This study did not explore this area. A possible study would involve the analysis of the news articles in this study for news sources and their messages with an attempt to identify opposing stakeholders.

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VITA

Gayla Kirksey Owen is the oldest of four children of Bob Dale Kirksey, of Jonesboro, Arkansas, and Onita Elaine Tate, originally of Bono, Arkansas. She is the oldest of 15 grandchildren of the late Leon Franklin Tate and of Margaret Laverne Roberts Tate, both of Bono, Arkansas; and the oldest of seven grandchildren of the late Albert Wesley Kirksey and the late Mattie Grace Hendrix Kirksey, both of Jonesboro, Arkansas. Gayla Ann Kirksey was born in Jonesboro, Arkansas, on February 20, 1963, and was educated in the public schools in the suburbs of Detroit, Michigan, in Bono, Arkansas, and in Jonesboro, Arkansas. She is a 1981 graduate of Jonesboro High School, where she played the oboe in the school's band.

Owen attended Arkansas State University and Memphis State University (now University of Memphis), where she graduated in 1989 with a bachelor of arts degree in journalism with an emphasis in political science. While at MSU, Owen served as president of the student chapter of the Society of Professional Journalists, as communications chairman for the College Democrats, and as managing editor, news editor and reporter for the student newspaper, *The Daily Helmsman*. She also was involved with the Shelby County Young Democrats and volunteered in several campaigns. Owen completed two internships while at MSU: one with the Tennessee General Assembly, where she served as assistant to the majority caucus chairman, and another with the *Arkansas Gazette*, a Gannett newspaper in Little Rock, Arkansas, where she worked as a reporter.

After graduating from MSU, Owen worked as a reporter for *The Daily News* in Memphis, Tennessee. From 1990 to 1992, she served as press secretary to Congressman Harold Ford (D-Memphis). Owen's next position was with the 1992 Clinton/Gore Campaign, where she served as deputy press secretary for Washington State. In 1993, Owen was hired as manager of public relations for the Manufactured Housing Institute in Arlington, Virginia, and served in that role for almost two years.

While in Washington, D.C., Owen served as a volunteer for the Office of Media Analysis in the Clinton White House; on the board of directors for the Tennessee State Society; and as a senior team leader for the LifeSpring Leadership Program. She was also a member of Toastmasters International and of the Public Relations Society of America.

In 1994, Owen married William Sneed Owen and moved to Knoxville, Tennessee, where he resided. After moving, she assisted him in running his two businesses. Owen returned to school in 1995 and officially entered the communications masters program at the University of Tennessee, Knoxville, in 1996. While at UT, she served as a graduate assistant, doing public relations work for the University Outreach and Continuing Education's Marketing Services Group. She also was a co-recipient of the PRSA Volunteer Chapter Award of Excellence in the student project category. In 1997, Owen had a daughter, Haley Kirksey Owen.

In Knoxville, Owen has served on the board of directors for the Parents Cooperative of Knoxville, taught children's Sunday School at the Unity Church of Knoxville, and has been a member of the Public Relations Society of America and of the Knox County Democratic Women.

Owen has a special interest in complementary and alternative medicine (CAM) and is both a patient and an advocate. She has written several articles on various CAM topics for the Knoxville publications *Perspectives* and *The Metro Pulse*.