ALTERNATIVE MEDICINE AND MEDIA: A COMPARISON OF ONLINE NEWSGROUP DISCUSSION AND NEWSPAPER COVERAGE

A Thesis

by

RUI ZHANG

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

May 2003

Major Subject: Science and Technology Journalism

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Approved as to style and content by:

Susanna H. Priest (Chair of Committee)	William M. Pride (Member)
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ABSTRACT

Alternative Medicine and Media: A Comparison of Online Newsgroup Discussion and Newspaper Coverage. (May 2003)

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This study examined a specific and controversial issue in health communication: complementary and alternative medicine (CAM). Recent studies have shown that both online newsgroups and traditional newspapers have been involved in communicating CAM information, but research has not answered whether there are differences between newsgroups and newspapers. From the perspective of uses and gratifications, this study first investigated that how people are using newsgroups to solve CAM-related problems. Then contents of newsgroup messages and newspaper stories were analyzed to compare topics, source types, efficacy claims, and CAM categories. The results showed that both similarities and differences existed between the two media.

To my parents…

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INTRODUCTION

Over the past 30 years, public interest in and use of complementary and alternative medicine (CAM) systems, approaches, and products has risen steadily in the United States. The National Institutes of Health (NIH) defined CAM as "those practices used for the prevention and treatment of diseases that are not widely taught in medical schools, nor generally available inside hospitals" (Gastel, 1997, p.146).

A study from the Journal of the American Medical Association reported that 43% of the U.S. population had used some form of CAM in addition to or instead of conventional medicine (Eisenberg et al., 1998). However, CAM per se is still a controversial health issue existing in the U.S. health care system. The emergence of the CAM controversy can be concluded in following aspects:

- Public interest in CAM among doctors, researchers, and health care consumers has grown rapidly although the lack of scientific evidence of CAM has always been a fact. Many CAM treatments are unproven. Some are even potentially harmful and dangerous. However, alternative medicines without confirmed proof are already in wide use.
- CAM is now a big business in the United States ($30 billion in 2002), according to the *Nutrition Business Journal* ("January 2002," 2002). CAM practitioners are aggressively marketing their services to patients. However, segments of CAM business, such as herbal products and other dietary supplements, are largely

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This thesis follows the style and format of *Communication Research*.

unregulated by the government.

- Patients, especially those who are suffering from a chronic illness (e.g., chronic pains and diabetes) and some types of cancer, are seeking information about CAM not only from their doctors but also from other sources. These sources might be misleading and unreliable. Available data might also be conflicting and confusing.

Just because of the very critical nature of CAM, and to match the increasing interest among the public, government agencies had funded research into certain CAM practices since early 1990s. So far, the National Center for Complementary and Alternative Medicine (NCCAM), which is one of the institutes of the NIH, had funded the establishment of 14 research centers to explore the safety and efficacy of a wide range of CAM therapies for a host of conditions. Funds that NCCAM received from Congress had increased from $89.2 million in 2001 to $104.6 million in 2002 ("Funding strategy," 2002).

In March 2002, the White House Commission on Complementary and Alternative Medicine Policy issued a report to President George W. Bush and Congress. "The report urges federal officials to spend more money on research into complementary and alternative medicine (CAM), better educate and regulate practitioners of these therapies, publicize the risks of certain CAM treatments and expand insurance coverage to make CAM affordable to more Americans" (*The Washington Post*, March 19, 2002). This report was viewed by the U.S. press as an encouragement of CAM development from the government.

With the prevalence trend of CAM occurred during the past decade, increasing media coverage on CAM has promoted public awareness of alternative medicines to a certain extent. The mass media have been recognized as important sources of health and medical information for laypersons and as a positive influence on those who working in the health care professions. Studies have been done on print media's coverage of major health problems, such as breast cancer (Andsager, & Powers, 1999; Corbett, & Mori, 1999), prostate cancer (Clark, 1999), heart attacks (Molitor, 1993), and chronic diseases (Mercado-Martinez, Robles-Silva, Moreno-Leal, & Franco-Almazan, 2001). A few researches had also focused on CAM and the press. For example, Dube, Swain, Vastag, Brown, and McMahan (1999) examined nine elite newspapers in five countries regarding whether there were differences or similarities between U.S. and international coverage of CAM.

In recent years, the rapid growth of the Internet has profoundly changed the ways in which people communicate about health and illness, as patients and consumers now can acquire more information from many different kinds of Web resources. Professional medical literature is available free in various full-text electronic journals, as well as on the Medline database, which contains abstracts from over 4,000 peer-reviewed journals (Wikgren, 2001). Online support group (in terms of electronic bulletin board, online discussion group, Internet chat room, Internet forum, online newsgroup, listserv, etc.) has become a medium that is being widely used by health care consumers. According to a commercial survey, one of four disease information seekers joined an online support group (Miller & Reents, 1999). The popularity of online support groups

attributed to its very nature of interactivity, which also distinguished online support groups from traditional media.

Online newsgroups, developed from electronic bulletin boards, are the most common way used by thousands and millions of people today. When subscribing to a newsgroup, people communicate with other users by posting and reading text-based messages (also called postings). As indicated by some scholars, users in newsgroups are not only the information seekers, but also the information providers (Hardey, 2001).

Since its earlier stage of online bulletin boards till today, newsgroups have attracted a lot of attention from communication researchers. Research has addressed the question of how newsgroups actually changed the ways in which people communicate about health and medicines. Within the theoretical framework of uses and gratifications, researchers are seeking how people use newsgroups to satisfy their needs and gratifications (e.g., James, Wotring, & Forrest, 1995). Uses and gratifications approach also suggested that different media satisfy different gratifications (Finn, 1997; James et al., 1995; Perse, & Dunn, 1998). The Internet creates a socio-cultural network where people can fulfill informational and interactive needs (Papacharissi & Rubin, 2000). Whether newsgroups would serve some same functions as traditional media do, or the newsgroups would satisfy different needs than traditional print media do, raised the interest of the current study.

On the topic of CAM, a pilot study of Internet discussion groups and Web sites for herbal remedies suggested that public interest in herbal remedies is outpacing the available scientific evidence online (Evans, 2001). To compare what information is

available in newspapers coverage, and what on earth people are seeking and discussing about CAM in newsgroups, will make sense of whether there are differences or similarities between the two kinds of media.

From the perspective of uses and gratifications, this study was conducted to test how newsgroups are helping people fulfill traditional media-related needs, whether newsgroups and newspaper could fulfill people's same needs in CAM-related issues, and whether any of the two media is doing a better job in satisfying these needs. The purpose of this study was twofold: first, to describe how people participating in newsgroup discussions on CAM issues and, second, to compare whether there are substantive differences or similarities between newsgroup messages and newspaper stories.

LITERATURE REVIEW

The objective of this study was based on the interest in CAM controversy and how people use media to solve CAM-related issues. To develop an understanding of audience's uses of certain media (in this research mainly the online newsgroups) was started with the theoretical framework of uses and gratifications.

Uses and Gratifications Approach

Uses and gratifications is a social-psychological, audience-centered perspective that draws upon models of indirect effects. The approach has been used by examining what people do with the media rather than what the media do to people (Katz, 1959).

Recent uses and gratifications studies have looked at individual characteristics and media use (Finn, 1997; Flanagin, Tiyaamornwong, O'Connor, & Seibold, 2002), audience needs and goals (Tewksbury, 1999; Vincent & Basil, 1997), motivation and gratifications sought (Kim & Rubin, 1997; Perse & Dunn, 1998; Vincent & Basil, 1997), and audience activity (Kim & Rubin, 1997).

Based on what Katz, Blumber, and Gurevitch (1974) originally described as the "social and psychological origins…which lead to differential patterns of media exposure" (p.20), some research has focused on demonstrating the relationship between basic personality traits and mass media use. Finn (1997), for example, examined the five-factor model of personality (extroversion, neuroticism, openness to experience,

agreeableness, and conscientiousness) and communication activities (mass mediated and non-mediated).

Other researchers have addressed the demographic factors as a correlate of media use. For instance, Flanagin et al. (2002) found that in anonymous, computer-mediated group environments, gender is a factor that influenced the strategies employed by men and women correspond with inferred motivations: "men are more likely to seek ways to make computer-mediated interactions more like a face-to-face interaction with women, whereas women are more likely to employ strategies that maintain the reduced social cues of computer-mediated communication and afford them greater potential influence in mixed-sex interactions" (p.90).

A large amount of studies have focused on people's motivation of using a medium and how certain media satisfy certain needs and gratifications. Research has consistently found that television is used mainly for relaxing entertainment, followed by needs to pass time and for information (Rubin, 1984). Perse and Dunn (1998) found that most common use of home computers and CD-ROM was a ritualistic orientation to fulfill time.

The notion of "active audience" has gotten wide acceptance among uses and gratifications researchers in contemporary studies. Uses and gratifications researchers assume that audience members are variably active in their selection and use of media and other communication vehicles to satisfy their social and psychological needs and wants. Individual differences mediate effects of exposure (Rubin, 1984). For instance, Kim and Rubin (1997) examined how the variability of audience activity promoted or deterred

media effects. They found that instrumental media motivation, selectivity, attention, and involvement were positive predictors of satisfaction, parasocial interaction, and cultivation effects. They also concluded that avoidance, distraction, and skepticism were negative predictors of those effects.

Researchers have also argued that uses and gratifications approach is appropriate for studying newer media technologies (Newhagen & Rafaeli, 1996; Rubin & Bantz, 1987). Ruggiero (2000) indicated that uses and gratifications had "always provided a cutting-edge theoretical approach in the initial stages of each new mass communication medium: newspapers, radio and television, and now the Internet (p.3)."

Uses and Gratifications and the Internet

Many scholars have argued that the Internet is a mass medium with the ability to fulfill interpersonal and mediated needs (e.g., Morris & Ogan, 1996). Studies that have examined motives for Internet use in general found that the Internet tends to satisfy entertainment, escape, and social interaction needs (Eighmey, 1997; Ferguson & Perse, 2000; Kaye, 1998; Papacharissi & Rubin, 2000).

Other scholars suggested that the Internet also gratifies users' needs to find information about some feature of society or the world around them (Kaye & Johnson, 2002). Especially, some specific functions of the Internet, such as e-mail and electronic newsgroups or bulletin boards, largely gratify information needs (James et al., 1995; Savolainen, 2001). Further, Papacharissi and Rubin (2000) found that e-mail satisfied information and entertainment needs, information seeking predicted Web browsing, and

convenience negatively predicted newsgroups, listserv, or electronic bulletin board use. A most recently study, from combined survey research and content analysis on personal home pages, found that most Web authors hosted a page for information and entertainment purpose, some for self-expression and for communicating with friends and family, and fewer for professional advancement or to pass time (Papacharissi, 2002).

Since the Internet users possess more active attributes, online newsgroup, listserv, and electronic bulletin board are in the category that attracted much more attention from uses and gratification researchers. From previous research (Blackman, 1990; Garramone, Harris, & Anderson, 1986), scholars discovered that the purposes of electronic bulletin board uses should include information exchange, conversation/socializing, and information viewing.

Garramone and her colleagues (1986) conducted a telephone survey among political bulletin board users, and found that the major function of the board was surveillance: to know more about the latest political issues and other opinion's on those issues, and to develop a social network for the user. Curiosity was also a commonly self-reported motivation.

Ogan (1993) remarked that active participants could fully utilize the potential of electronic discussion groups to create an "invisible college" or "coffeehouse" where they develop a sense of belonging and commitment, and share ideas with one another.

After examining two national electronic bulletin boards (*CompuServ*e and *Prodigy*), James et al. (1995) concluded five major purposes of the usage: entertainment/interest, non-income related information/education, business,

communication media appeal, and socialization. Among the five groups, the most prevalent single area reported by electronic bulletin board users was in the transmission of information and education content in a non-income related way.

However, when mentioned to health or medicine newsgroup users, especially on the topic of CAM, knowledge is limited in motives or gratifications sought. This study was started to look at the uses of CAM-related newsgroups in satisfying people's needs.

Health Communication and the Internet

Health and medicine have been a major part in science communication studies. A great deal of attention has been given to the role of the media in health-related issues. As the rapid growth of the Internet, a huge amount of health and medical information is available online. The Internet has become another source for both laypersons and experts in health care. According to a report from National Telecommunications and Information Administration, among Internet users in 2001, 39% of individuals were searching for health information ("A Nation Online," 2002).

For the public, the Internet is providing easy access to information on various health and disease topics, medicines, and research findings. Internet users also are able to participate in a growing number of online communities that provide support, advice, and the opportunity to share experiences. Researchers have also studied these different functions of the Internet, such as electronic bulletin boards or newsgroups, as well as the World Wide Web (WWW). In a study in 2001, Hardey found that users of health services had also become significant providers of health information and advice on the

Internet. With its community-building capabilities, the growth of online support groups (e.g., electronic bulletin board, Internet chat room, listserv, newsgroup) has contributed greatly to the empowered health care consumers. These support groups are becoming increasingly sophisticated and regulated. Evidence suggested that they could produce positive behavioral changes. For example, a study had found that an Internet-based weight loss program had shown success in achieving its goals among 91 participants over six months (Tate, Wing, & Winett, 2001). Another study showed that HIV-infected individuals who participated in an online support group experienced significant improvement in quality of life compared to those who did not participate (Smaglik et al., 1998).

All of the above studies suggested that the Internet, as a new medium in communicating health, are providing some services or functions that had never been provided by traditional media before, and are changing the ways that people are doing with their health problems. The Internet's ability to facilitate the quick exchange of vast amounts of information and ideas to large, geographically dispersed audiences has greatly transformed the practice of health and medicine. Communication researchers have already defined five major characteristics for the new computer mediated communication (CMC)—interactivity, asynchronicity, channel segmentation, mechanomorphism, and lack of sensory (Williams, Rice, & Rogers, 1998). These characteristics of the Internet dramatically influenced the effectiveness of health communication.

While the Internet gained popularity in health communication, many researchers argued that certain criteria are necessary to create, maintain, and evaluate reliable health information on Web sites (Adelhard & Obst, 1999; Clark, 2002). Problems have also been found in online health newsgroups.

In their study of one Internet discussion group, Culver, Gerr, and Frumkin (1997) found that medical information available on Internet discussion groups might come from nonprofessionals and may be unconventional, based on limited evidence and/or in appropriate.

Desai, Dole, Yeatman, and Troutman (1997) evaluated the postings from a newsgroup (*sci.med.pharmacy*) and found that about half of the drug information was judged to be correct, while almost 20% was classified as harmful. From a similar study of the same newsgroup, Seaboldt and Kuiper (1997) compared responses from drug information centers and Usenet newsgroup, and found a significantly smaller proportion of information responses from newsgroup were judged as being accurate.

It seems that newsgroup is a problematic channel that mediates some problematic health information. Considering the controversial nature of CAM, when the unconventional and unproven medicines are discussed in newsgroups, the controversy will be doubled.

In a study of how individuals accessed and used health information through different channels, O'keefe, Boyd, and Brown (1998) addressed the view of audiences being active in information seeking and selection processes rather than of audiences being passively acted upon by communication agents. When being applied to the issue

of CAM, it could be assumed that people will use other channels, such as online newsgroups, to get needed information that traditional media are not providing. From the perspective of uses and gratifications, the research question for this study was, on CAM-related issues, whether newsgroups can satisfy people's same needs and gratifications as newspapers do.

CAM Newsgroups and CAM News Stories

Before the Internet came onto the stage of mass communication, for most people, the reality of science was what they learned from the press (Nelkin, 1995). Science journalists, in a sense, have been gatekeepers for the infusion of scientific information into the public sphere (Rensberger, 1997). However, research based on media displacement theory has shown that communication activities will be changed with the addition of another medium (Robinson, 1972). Some have suggested that the introduction of new media requires us rethink our uses and views of newer and older media (James et al., 1995). In the past decades, the decline of newspapers, in terms of circulation, reader frequency, household penetration, and so on, has been observed by both the industry and scholars (Bogart, 1989; Mings, 1997). Newer media, however, do not necessarily displace older media easily. In other words, the innovation of the Internet is not necessarily the cause of the decline in use of the other media (Stempel III, Hargrove, & Bernt, 2000). Compared with those who use the Internet and those who do not use, Stempel III and his colleagues further indicated that Internet users are in fact more likely than non-users to be newspaper readers.

Uses and gratifications researchers have also questioned whether new telecommunications media are used to satisfy the same needs they had been theorized to satisfy with traditional communication media (Finn, 1997; James et al., 1995; Perse & Dunn, 1998). Some suggested that new technologies might help people satisfy some needs better than do older media (Rubin & Haridakis, 2001).

As a subcategory of the Internet, the newsgroup appears to be a hybrid channel, which possesses the characteristics of both mass communication and interpersonal communication. It could be assumed that newsgroup's text-based format allow people to gain some needs traditionally provided by newspaper, such as information needs on CAM issues. On the other hand, because newsgroup users also function producers besides audience, the newsgroup seems to fulfill some extra needs that newspaper cannot do, such as socializing, expressing or even entertainment. So, on the issue of CAM, the question is whether people are using newsgroups for a different kind of purpose—to fulfill different needs and gratifications—than newspapers.

James et al. (1995) proposed that, in a non-business-related way, electronic bulletin boards are primarily a way of receiving and giving information. And the reason that people use electronic bulletin boards was "that the information gained in this way was available through no other source" (p.42). Given the dearth of literature in comparison of Internet newsgroups and traditional newspapers, this study examined the differences and similarities between the new and old media. Through the comparison of CAM information provided by newsgroups and newspapers, the study was supposed to answer whether the two media could be used to satisfy similar needs and gratifications.

In some studies emphasizing the media-audience relationship, research has shown that disparities exist between what people need and what media provide. Potter (2002) conducted a study of radio station Web sites and found that the mismatches were significant between what listeners said they want most and least, and what the radio stations were actually delivering through their Web sites. Another study (Spirek, Dervin, Nilan, & Molly, 1999) showed that information needs and seeking successes by audiences while reading newspaper leisure time coverage are quite different than while facing actual leisure time situations. In a CAM-related study, Evans (2001) compared newsgroups and Web sites regarding herbal remedies, and suggested a significant disparity exist between public interest in herbal remedies and the available scientific evidence online. Information from newsgroups can somehow reflect people's needs and interest in CAM-related issues, because people are the creators of messages in newsgroups. Even though information from newsgroups cannot directly tell what people are expecting from the media—either newsgroups or newspapers, it will show a picture of the public's interest in CAM from an indirect aspect. By comparing newsgroups and newspapers, this study was also conducted to give a hint of an answer to the question of whether newsgroup is doing a better job in helping people satisfy some needs than newspapers has been doing.

Research Questions and Hypotheses

Based on the assumption from uses and gratifications approach, media users are actively select certain media to fulfill their needs. Understanding the differences or

similarities between media will help further understanding of how different media satisfy different gratifications, and why people make the decisions of choosing certain media, or even how differently media will finally impact their audience.

With the examination of newsgroup uses, and the comparison of newsgroup messages and newspaper articles, the primary research questions for this study were:

RQ1: How are people using newsgroups to satisfy their needs of CAM-related issues? What gratification sought can be observed from newsgroup content?

RQ2: Is there any significant differences between the newsgroup discussions on CAM and newspaper coverage of CAM?

RQ3: If the differences do exist, what are they?

This study compared information in newsgroups and newspapers from four aspects. The second and third research questions then translated to four hypotheses.

Knowledge in CAM-related newsgroup usage and newspaper coverage is limited in literature. Some special topics on CAM, such as legal controversy, public policy, and insurance issues had been addressed in former studies on newspapers coverage on CAM (Dube et al., 1999). For the newsgroups, Wikgren (2001) examined the citation patterns in discussions for the beneficial and hazardous use of dietary chromium supplementation. Evans (2001) estimated the numbers and frequency of some common used herbal remedies in newsgroup discussions. But what exactly people are talking about on CAM issues has not been touched before. This study assumed that topics in newsgroup discussions are quite different then topics of newspaper reporting.

Hypothesis 1: Newsgroup CAM-related discussions focus on different topics than newspaper articles.

Journalists have been relying heavily on sources in reporting science. Research has analyzed who the sources are and how they are used in newspaper's coverage on health and medicine. Shepherd and Goode (1977) found that, in stories reporting scientific findings about marijuana, head administrators of institutes or organizations were used more frequently than the most influential marijuana researchers. In a study of print media's coverage on alcoholism, homosexuality, and mental illness, Conrad (1999) found that the researchers who conducted the study and other expert scientists accounted for the major part of sources used in the news articles. He concluded that journalists tended to utilize experts in presenting science to the public.

A few latest studies have addressed the sourcing patterns in newsgroup discussions. In consumer information newsgroups, Savolainen (2001) found that the answers given to questions were heavily based on the informant's own experience and knowledge. After examining newsgroup discussions on the use of dietary chromium supplementation in diabetes self-management, Wikgren (2001) found that 86 out of 94 citations were Web sites, such as the Medline database, and official or governmental Web sites. Other references cited in Wikgren's study included textbooks, medical journals, and the participant's own physician.

The second research hypothesis tested whether different types of sources are used in newsgroup discussions and newspaper coverage.

Hypothesis 2: Newsgroup participants are more likely to use personal experiences and Web sites as references, while newspapers journalists tend to use more expert sources when covering CAM.

Safety and effectiveness are the crucial concerns of CAM consumers. Dube et al. (1999) compared CAM coverage in nine elite newspapers in five countries, and found the nearly 58% of all stories contained positive portrayal of CAM between 1992 and 1997. Further, they found that the U.S. papers had a higher rate than the international papers in the positive coverage.

Studies that have addressed the health and medical information on the Internet tended to focus on the quality and credibility of the information (Adelhard & Obst, 1999). Claims of medicine effectiveness was a major variable measured in these studies. For instance, Evans (2001) examined 209 Usenet newsgroup messages containing discussion on milk thistle and found that 111 messages (53%) made claims regarding the efficacy. Moreover, 104 of the 111 messages claimed that milk thistle is efficacious, whereas only 6 messages claimed it's inefficacious.

The third research hypothesis concerned the efficacy claims in newsgroup discussions and newspaper stories.

Hypothesis 3: Newsgroup messages are more likely to contain efficacy claims on CAM than newspaper stories, and are more likely to claim that CAM is efficacious.

The last comparison was between the exact CAM treatments appeared in newsgroups and newspapers.

According to an NIH survey in 1999, one-third of U.S. consumers polled said they visit an alternative medicine specialist once a year. The top three reasons given for visits were spiritual healing, herbal medicine, and chiropractic therapies ("The deep-down benefits", 2000).

Dube et al. (1999) identified 22 categories of alternative medicines from 259 newspaper articles. The result showed that U.S. coverage on CAM "tended to focus on alternative medicine in general and acupuncture, with added emphasis on herbal remedies, massage therapy, homeopathy, chiropractic medicine, osteopathy and meditation" (p.32).

Using a compiled dictionary of 184 herbs, Evans (2001) searched the Internet and found that, in February 2000, milk thistle and St. John's wort were the most frequently appeared herbal remedies on relevant Web pages. His study, however, didn't tell which CAM appeared in newsgroups most frequently.

Hypothesis 4: CAM treatments appeared in newsgroups are quite different than those covered by newspapers.

METHOD

Methodologically, uses and gratifications research assumes that audience members are self-aware enough to report on their personal motivations for using media (Katz et al., 1974). Most uses and gratifications studies rely heavily on self-reported data, which are mainly gained from survey research, to explore people's motivations and gratifications sought of using media. A few studies used some other methods. For example, Mings (1997) examined people's uses of online traditional newspaper and online personalized newspaper by videotaping the actual viewing activities.

The objective of this study was to examine, on the issues of CAM, how people use newsgroups to satisfy their needs, and whether the same needs could be met by the uses of newspapers. Uses and gratifications researchers suggested that different media have different functions in satisfying people's needs and gratifications. These functions are served either by some specific content or by the medium itself (Ruggiero, 2000). As mentioned before, because newsgroup participators are not only the audience but also the producers of the messages, content of newsgroups will in some way reflect the uses and needs of the public. The objective of this study was met by comparing the contents of newsgroups and newspapers. Content analysis was used to do the comparison.

Sampling

For this study, the population of interest was Usenet newsgroup messages and the U.S newspaper stories on CAM.

Newsgroup messages were obtained from Google Groups, which contains the entire archive of Usenet discussion groups dating back to 1981. Google Groups is a sub-category of the online search engine Google.com. After acquiring the Usenet discussion service from Deja.com in February 2001, Google Groups now is providing relevant results from a database containing more than 700 million posts, including newsgroups related to science, health, nutrition, politics, lifestyles, sports, and so forth.[1] Through deployment of improved search and browsing tools, all messages could be searched by keywords and sorted by date or relevance.

Newspaper stories used in this study were selected from both the elite[2] and non-elite newspapers in the United States. The articles are available on the Lexis-Nexis database.

To get the most recent data, time frame for both newsgroups and newspapers was between January 1, 2002 and December 31, 2002. Data collection took place from November 20, 2002 till January 10, 2003.

Both the messages and news articles were systematically sampled using the keyword string and other advanced searching function provided by Google and Lexis-Nexis. All messages and news stories were sorted by date after the keywords searches.

Keywords used to perform Lexis-Nexis and Google searches were combined from former content analysis researches on CAM. In order to perform the searches, the keywords were also truncated and/or combined with Boolean connectors. Table 1 shows the total populations of newsgroups messages and newspaper stories for each month after the keywords searching.

Table 1
Total Populations of Newsgroup Messages and Newspaper Stories by Month

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Newsgroup	2639	1971	1964	1815	2247	1832	1660	2221	1566	2072	2384	1803	24174
Newspaper	377	287	285	317	241	304	281	268	276	295	300	250	3481

To get a workable sample size with similar numbers of samples chosen from each medium, every 100th newsgroup message and every 20th newspaper story were selected from the population, except for those that did not qualify for inclusion in the sample.

Newsgroup messages were disqualified: (1) if a word appeared between two connected keywords (e.g., alternative medicine), and this word created a phrase unrelated to CAM, (2) if the CAM mentioned in a message was merely for animal use, (3) if the keywords only appeared as newsgroup's name (e.g., *misc.health.alternative*), but the message was unrelated to CAM, (4) if it was an administrative notice.

Berman (1996) indicated that administrative notice, which mainly performs housekeeping function in newsgroups, is one of the major four purposes of newsgroup messages. However, administrative postings, such as the frequently asked questions (FAQs), were excluded from the current study. Because newsgroup managers are the authors of administrative messages, but this study was concentrated on the users who participated in newsgroups discussions. Another reason is that this study focused on CAM issues discussed in a variety of newsgroups, but not focused on examining the uses of a specific newsgroup.

Newspaper stories were disqualified: (1) if they were obituaries or calendars, (2) if the CAM mentioned in stories was merely for animal use, (3) if a word appeared between two connected keywords (e.g., alternative medicine), and this word created a phrase unrelated to CAM.

The final sample used for this study consisted of 255 newsgroup messages and 190 newspaper stories. Figure 1 shows the numbers of messages and stories in each month in the sample.

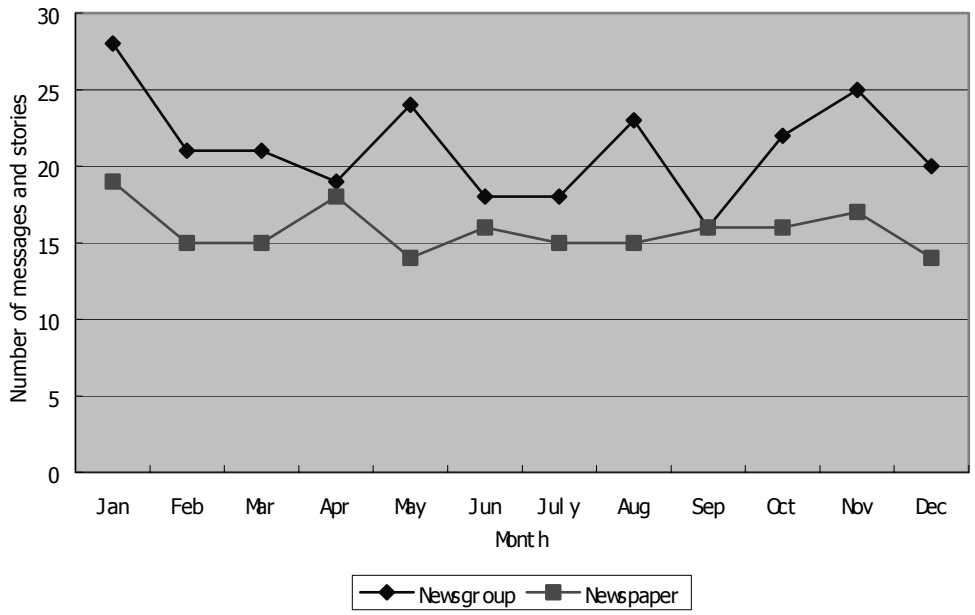

Figure1. Numbers of Newsgroup Messages and Newspaper Stories in the Sample

Coding Unit

Content of the Web is both similar to and different from traditional media. Research has indicated that stable and rigor technique of content analysis is needed in the dynamic communication environment of the Web (McMillan, 2000). Newsgroup messages are text-based mainly. Without multimedia and many interactivity functions, content analysis can be applied to newsgroups much easier than to the Web pages. However, because of some special natures of newsgroups, difficulties still exist when examining the messages.

When a person posts a new message to a newsgroup, he/she creates a thread. All messages following the original post will be under the same thread. All messages replying to any of the already existing posts in a thread will also be included in the same thread. So in a thread, messages are supposed to be of the same topic. However, the life cycle of the discussions, or the length of a thread, may vary largely. The discussion on a topic may die out in one or two days, or last for months (Savolainen, 2001). So a message appears later in a thread may have a quite different topic then those appear earlier in the thread. It's hard to judge the purpose or topic of a thread by only reading a single message. Moreover, if the message is not the first post (the original message) in a thread, the message may contain other's discussions in it. Words that the current author writes may stand separately or even interlace with the cited or quoted content. This study chose each single message as a coding unit, and coded variables only for that message but not for the thread. The text of cited or quoted information in the message was not

coded. However, cited or quoted text was used to give a context when determining the topic of each message.

The following variables were coded for each newsgroup message in the sample: newsgroup name, month, number of messages in the thread, whether the message is the first post in the thread, whether the subject contains a CAM name, message topic, type of sources used in the message, whether the message contains efficacy claims, and every CAM name mentioned in the message.

The following variables were coded for each newspaper story in the sample: newspaper name, month, length (word count), whether the headline contains a CAM name, section type, story focus, story topic, type of sources used in the story, whether the story contains efficacy claims, and every CAM name mentioned in the story.

A pilot study of 50 newsgroup messages and 50 newspaper articles were used to generate categories for topic and source type.

Data Analysis

All data were entered into SPSS for analysis. To test the hypotheses, Chi-square test (Johnson, 1984, pp. 384-393) was used to find whether there are significant differences among each category of the four variables—topic, source type, efficacy claim, and CAM name. Because some categories of the variables only contained data from one medium, for example, some topics may only appear in newsgroups, Fisher's exact test was used in this situation (Lachin, 2000, pp. 33-36).

RESULTS

The 255 newsgroup messages were collected from 151 newsgroups in English language[3] (See Appendix A for the list of newsgroups). Most of the messages (n = 226, 88.6%) were posted only in one newsgroup, while 12.4% of the messages were posted in more than one newsgroup. The majority of the 151 newsgroups (n = 82, 54.3%) were pertinent to health (e.g., *alt.health*), illness (e.g., *alt.support.diabetes*), medicine and science (e.g., *sci.med*), or lifestyle and fitness (*misc.fitness.weights*). In the sample, CAM issues were also discussed in newsgroups of other focuses, such as politics (e.g., *alt.politics.republicans*), religion (e.g., *talk.religion.buddhism*), recreation (e.g., *rec.sport.skating.ice.figure*), and culture/society (e.g., *soc.culture.indian*). About 35% of all messages were coming from a specific CAM newsgroup—*misc.health.alternative*. Table 2 lists the top five most frequently used newsgroups in the sample. These

Table 2
Top 5 Newsgroups With Highest Message Rates

	Number of Messages	Percent (N = 255)
misc.health.alternative	90	35.3
alt.support.cancer	9	3.5
sci.med	7	2.7
alt.support.asthma	6	2.4
alt.med.fibromyalgia	5	2.0
alt.support.attn-deficit	5	2.0
sci.med.diseases.hepatitis	5	2.0

newsgroups are all relative to health and illness. Totally, 49.8% of all the messages (n = 127) were coming from these seven newsgroups.

Among the 255 newsgroup messages, 59 (23.1%) were the original messages in the threads. On average, there were 49 messages in a thread (Max = 1384, Min = 1, SD = 130.2). The time length of each thread was not coded for this study.

The 190 newspaper stories in the sample were collected from 81 U.S. newspapers (see Appendix B for the list of newspapers), with *Chicago Daily Herald* accounted for the highest percentage (6.8%) of all newspapers. Table 3 lists the top five newspapers with the highest story rates.

Table 3
*Top 5 Newspapers With Highest Story Rat*es

	Number of Stories	Percent (N = 190)
Chicago Daily Herald	13	6.8
The New York Times	10	5.3
The Oregonian	9	4.7
The Record (Bergen County, NJ)	8	4.2
The Palm Beach Post	6	3.2

The 190 newspaper stories had an average length of 735 words (Max = 2863, Min = 33, SD = 451.4). As mentioned before, the length of each newsgroup message was difficult to determine at the current technical stage. Message length was not coded in this study.

For each newspaper story, header information was used to decide the section type. The section type tells on which part a news story appears in the newspaper. As Table 4 indicates, Local/State/Regional, Health/Life/Science, and National were the top three rated sections, with total of 83% of stories fell into these sections. While more than half of the newsgroup messages in the sample came from health-related newsgroups, only 26% of the stories appeared in health-related sections in the newspapers.

Table 4
Section Types of Newspaper Stories

	Number of Stories	Percent (N = 190)
Local, state or regional	92	48.4
Health, life and science	49	25.8
National	17	8.9
Opinion/editorial	9	4.7
Business	7	3.7
Travel	3	1.6
Sports	3	1.6
Features	2	1.1
Other	8	4.2

As showed in Table 5, among the 255 newsgroup messages, less than half (n = 105, 41.2%) contained a name of CAM in the subject. While among the 190 newspaper stories, more than half (n = 98, 52.6%) contained a CAM name in the headline.

Each newspaper story was also coded as whether it had a focus on CAM issues. The focus of a newspaper story was ascertained both from the headline and the full content of the story. Out of 190 stories, 80% had a CAM focus, with half of the stories (n

= 95, 50%) focusing on one specific CAM. Table 6 lists the distribution of news story focus.[4]

Table 5
Comparison of Subjects and Headlines

	Newsgroup (N = 255) Percent of Messages	Newspaper (N = 190) Percent of Stories
Subject or headline contained CAM	41.2	51.6
Subject or headline didn't contain CAM	58.9	48.4

Table 6
Focuses of Newspaper Stories

	Number of Stories	Percent (N = 190)
A specific CAM	95	50.0
More than one CAM	26	13.7
General CAM	30	15.8
Story focus is not a CAM issue	39	20.5

Uses of Newsgroups

To answer the first research question—how people are using newsgroups to solve CAM-related problems, the study examined the purpose of each message.

In a study of two social work discussion groups, Berman (1996) had identified four major purposes of the posts:

- Information transfer: the participants were informed of forthcoming seminars or meetings, vacant jobs, etc.;
- Information seeking: asking information or advice of various issues;

- Discussion on a topic; and
- Administrative purposes, for example, announcements concerning subscription to a newsgroup.

As mentioned before, administrative messages were excluded during sampling process in the present study. This study then applied a "grounded theory" approach, which means the topics were developed from the content of each medium, but not from some predetermined categorization. After the pilot study of 50 newsgroup messages, 23 discussion topics were identified. According to the purposes of the topics, the 23 topics were further categorized into four major areas: seeking information, providing information, discussing on a topic, and showing attitude or expressing emotions. Each message was coded for only one topic. Since a few messages were quite long and covered more than one topic, the first CAM issue appeared in the text was coded as the topic for that message. Table 7 shows the number and percent of messages falling into each category of purposes.

Table 7
Purposes of Newsgroup Messages

	Number of Messages	Percent of Messages (N = 255)
Seeking information	18	7.1
Providing information	83	32.5
Discussing on a topic	117	45.9
Showing attitude or expressing emotions	34	13.3
Other	3	1.2

Messages with purpose of seeking CAM information accounted for 7.1% of all the messages. As illustrated in Table 8, topics of seeking information included seeking CAM on a disease(s), seeking evidence on CAM, and seeking CAM providers. These three categories had similar percentage in the sample.

Table 8
Major Areas of Information Seeking

	Number of Messages	Percent (N = 18)
Seeking CAM on a disease(s)	7	38.9
Seeking evidence on CAM	6	33.3
Seeking CAM providers	5	27.8

The ailments mentioned by those who are looking for CAM treatments included allergy, hair loss, Crohn's disease, repetitive strain injury, lupus, arthritis, and asthma. Messages with the first purpose were mostly very straightforward, such as the following example:

> Have any of you used "alternative medicine" solutions to your lupus problems? I'd like to hear about your experiences with alternative medicines, especially if you had any positive results (*alt.support.lupus*, September 20, 2002).

Messages with the second purpose focused on seeking scientific evidence or other's experience on a specific alternative medicine or treatment. Some authors of these messages were CAM users, while others were just those who have interest in CAM or those who are doing a research on CAM.

In the messages of seeking CAM providers, people were asking where they could buy a certain alternative medicine, how they could find CAM products manufacturers, or where they could find a CAM practitioner, such as an acupuncturist, in their area.

As showed in Table 9, seven topics of the messages were categorized into the purpose of information providing. Most messages with an information providing purpose were posted into newsgroups as responding to other's requests and questions. For instance, people were providing a source or reference to those who were seeking CAM providers, and were answering CAM usage and effectiveness to those who were asking for this information. Other people just wanted to share some CAM information with others in the newsgroups. This kind of information included the up to date study findings on CAM, and the alerts of using dangerous CAM and fraudulent CAM. Normally, the information came from mass media or academic journal articles.

Table 9
Major Areas of Information Providing

	Number of Messages	Percent (N = 83)
Providing a source or reference	26	31.3
Answering usage, function, price or effectiveness of CAM	17	20.5
Recommending CAM to a disease(s)	16	19.3
Providing new study findings on CAM	8	9.6
Warning dangerous CAM or revealing fraudulent CAM	7	8.4
Advertising	6	7.2
Suggesting conventional medicine instead of CAM	5	6.1

Compared with the messages recommending the use of CAM, there were also some suggestions on not using CAM. The following message is an example of recommending conventional health care.

> Just be aware that herbs/vitamins are sold as food products… It can actually be quite dangerous to self-medicate using these products, as you're never sure how much you're actually getting of the product. If you have serious pain issues, I strongly recommend you do go and see the doctor to make sure don't do yourself more harm than good. (*alt.support.chronic-pain*, February 28, 2002)

In many Usenet newsgroups, especially in those illness support groups, advertising posts are strictly forbidden. However, there were still six messages with advertising purpose identified from the sample.

As showed in Table 10, eleven topics were identified as discussing purpose. Messages with a discussing purpose were not focusing on seeking for or sharing of certain information. They were more likely to reflect the CAM-related issues of people's concerns.

Relationship between conventional and alternative medical systems accounted for the highest rate (n = 30, 25.6%) among the discussion topics. The topic covered the evolvement of both health systems, and how they are distinguished from each other today. Other discussions concentrated on why people are turning to alternative medicine from the conventional. The main reason given from the newsgroups was that there are no cures for some types of cancers and chronic illnesses (e.g., chronic pains and diabetes). People with these diseases are struggling for any hope around them, whether it's CAM or not. Dissatisfaction with how traditional medicine deals with ailments, the prevalence

Table 10
Major Discussion Topics

	Number of Messages	Percent (N = 117)
Relationship between conventional medical system and CAM	30	25.6
Debates on how people should behave in newsgroup discussion	18	15.4
Politics or legislation of CAM industry	16	13.7
Need for clinical evidence or scientific proving procedure on CAM	13	11.1
Concerns of side effects or potential danger of CAM	11	9.4
Suspecting the effectiveness of CAM	10	8.5
Expanding of CAM health care or CAM industry	8	6.8
CAM related lawsuits	5	4.3
Hulda Clark's case	3	2.6
CAM research development	2	1.7
Health ethics of CAM practitioners	1	0.9

of unwanted side effects, and concerns about medical costs were other common reasons shared by newsgroup users. Without surprise, criticisms of the inability of conventional health system also appeared in some messages. Some said that they had already been abandoned by conventional doctors, so they turned to seek self-medication in CAM system. Others gave the reason for the tendency of self-medication to the mechanism of mainstream health care system. One said, people are "frustrated with a difficult-to-navigate health-care system, Americans are becoming more adept at choosing and managing their own care" (*alt.med.cfs*, August 23, 2002). For the resolution of the problem, there were some voices of suggesting the combined use of conventional and alternative medicine systems, such as the message showed below:

> Personally I use "alternative medicine" a fair bit, finding some of the herbal treatments to be better than what modern medicine provides. Of course, I go to the doctor for the diagnosis part. (*alt.fan.rush-limbaugh, alt.politics.usa. republican, alt.society.liberalism, alt.politics.democrats.d, alt.global-warming, sci.environment*, October 31, 2002)

Besides the relationship between conventional and alternative medical systems, most of other discussion topics had also addressed the CAM controversy from various aspects. These topics covered the expanding of CAM industry and the underdevelopment of CAM legislation, the concerns of side effects and the needs for clinical evidence of CAM. CAM-related lawsuits discussed in the newsgroups also reflected the controversial nature of CAM. In particular, the case of a CAM practitioner—Hulda R. Clark, was an extreme example of practicing unproven CAM method without license. The only one message with the topic of health ethics was about the CAM practitioners' involvement with CAM pharmaceutical industry to promote alternative medicines.

Although this study didn't include the administrative messages with guideline and instruction for the uses of newsgroups, it's interesting to see that users tended to be self-regulated in newsgroup discussions. Debates on how people should use newsgroups for CAM discussion and how people should behave themselves in the discussions ranked the second place (n = 18, 15.4%) in the discussing topics. Because that people might hold different attitudes to or beliefs in CAM, arguments on the use of CAM sometimes turned into personal insults at last. Many users were aware of this problem, and pointed out that, in newsgroup discussions, people should give respect to each other, even though other users might be your opinion opponents.

As mentioned above, advertising messages are forbidden in many newsgroups. Another self-regulated activity was reflected from the criticizing of those who promoted CAM in newsgroups. In messages with this purpose, the authors recapitulated the rule of "no advertising" or even warned the author of advertising messages that they might lose their right to post in the newsgroups.

A few participants concerned the relation between the use of CAM newsgroups and their real life situations. The following example addressed this issue. At the same time, it also criticized the misuse of CAM newsgroups.

> I used to think I spent too much time on USENET, that I was focusing too much energy on virtual people and virtual discussion and ignoring the REAL world out there of flesh and blood people, but some of you folks really make me feel comparably sane… Someone coming in here to genuinely find out about the pros and cons of alternative medicine gets smacked in the face with hysteria, sensationalism, and name-calling. (*misc.health.alternative*, February 10, 2002)

Among the 255 newsgroup messages, 34 were used for expressing purpose. As showed in Table 11, these messages were classified into two categories—showing one's attitude to or beliefs in CAM.

Table 11
Major Areas of Showing Attitude and Expressing Emotions

	Number of Messages	Percent (N = 34)
People's attitude to or beliefs in CAM	29	85.3
Expressing emotions	5	14.7

In the first category, many newsgroup users were just claimed themselves as "pro-complementary," "pro-conventional," or "anti-alternative," etc. They might not give any reasons for their claims. Some were showing attitudes toward CAM, such as by saying "I like alternative medicine." Others were busy with quarreling with each other. A user even did a survey on people's beliefs about alternative medicines in a newsgroup. For the results, he wrote:

> Many respondents didn't understand why alternative medicines were necessary at all, as all of them believed their health needs had been met by "western medicine." Those who had chronic pain or conditions worsened by M.D.s held alternative medicine as valuable. (*alt.rec.bicycles.recumbent,* January 15, 2002)

Messages used to express certain emotion were from the users who wanted to say thankful words to those who provided useful information, or say congratulations to those who recovered from a condition by using CAM.

Comparisons

To answer the second and third research questions—whether there are similarities or differences between newsgroups and newspapers, and where they differ significantly from each other, the four hypotheses were tested in topics, types of sources, efficacy claims, and CAM names.

Topics

To do the comparison, topics for newspaper coverage themes were developed based on the 23 topics of newsgroup messages. In the pilot study, 50 news articles were used to

test the topics. Topics for information seeking and emotional expressing purposes were exclusive in newsgroup messages. Also, because of the nature of news reporting, there were some newsgroup topics, such as advertising and debates on how people should behave in newsgroup discussions, which were not observed in news stories. The topic of accomplishments and social contributions of a CAM practitioner appeared only in newspaper stories. When doing the comparison, the topic of recommending CAM to a disease(s) in newsgroups was merged into the topic of usage, function, price or effectiveness of CAM. The two topics were separated based on their purposes in newsgroup discussions. Messages recommending CAM to a disease(s) were posted mainly to reply those who were looking for CAM on diseases. However, these messages normally contained the information of usage, function, price, or effectiveness as well. Table 12 lists the final 24 categories of topics that were used to do the comparison.

Statistical analysis showed that differences are significant in four topics ($p < .0001$). They are people's attitude to or beliefs in CAM, debates on how people behave in newsgroup discussions, expanding of CAM health care or CAM industry, and accomplishments and social contributions of a CAM practitioner. Differences in the first two topics mainly result in the medium itself. The topic on people's behaviors in newsgroups use is directly linked to newsgroup per se. Also, it could be concluded that newsgroups are more likely to be used to show attitudes and beliefs than newspapers. Differences in the other two topics reflect the focuses of newspapers' reporting on CAM issues.

Table 12
Comparison of Topics

	Newsgroup (N = 255) Percent of Messages	Newspaper (N = 190) Percent of Stories
Seeking CAM on a disease(s)	2.8	–
Seeking evidence on CAM	2.3	–
Seeking CAM providers	2.0	–
Usage, function, price or effectiveness of CAM	12.2	17.9
Providing a source or reference	10.2	4.8
Warning dangerous CAM or revealing fraudulent CAM	2.8	3.2
Suggesting conventional medicine instead of CAM	2.0	0.5
New study findings on CAM	3.1	3.7
Advertising	2.3	–
Suspecting the effectiveness of CAM	4.0	0.5
Need for clinical evidence or scientific proving procedure on CAM	5.1	2.6
Concerns of side effects or potential danger of CAM	4.3	6.8
Politics or legislation of CAM industry	6.3	8.4
Relationship between conventional medical system and CAM	11.8	7.4
People's attitude to or beliefs in CAM	11.0	1.1*
CAM related lawsuits	2.0	1.6
Expanding of CAM health care or CAM industry	3.1	27.9*
Health ethics of CAM practitioners	0.4	0.5
Hulda Clark's case	1.2	0.5
CAM research development	0.8	4.8
Debates on how people should behave in newsgroup discussions	7.1	–*
Expressing emotions	2.0	–
Accomplishments and social contributions of a CAM practitioner	–	6.3*
Others	1.2	1.6

Note. * A statistically significant difference at the .002 level ($p < .0001$).

The expanding of CAM health care and industry had the largest percentage (n = 53, 27.9%) among the 190 news stories, while only eight messages in newsgroups were discussed on this topic. Under this topic, news stories were further classified into seven

categories. As showed in Table 13, CAM expanding stories covered from the CAM products, health care to CAM business and industry, and even CAM program at medical schools. The tendency of increased CAM practices and business expanding can be seen as a social phenomenon, which has news value to the newspapers. However, stories deemed by journalists as worthy news didn't guarantee that the same topics would be of the highest interest among newsgroup users.

Table 13
Major Areas of CAM Expanding in Newspaper Stories

	Number of Stories	Percent (N = 53)
Increased CAM practices in conservative hospitals	13	24.5
Expanding of CAM business	11	20.8
Increased demand or popularity of CAM	8	15.1
Improvement of CAM clinics	6	11.3
New business opportunities or CAM products	6	11.3
Expanding of CAM health care	5	9.4
New CAM program at medical schools	4	7.6

Accomplishments and social contributions of a CAM practitioner is the topic observed only from newspaper stories. Stories of this topic accounted for 6.3% (n = 12) of all news articles. The coverage themes of these stories focused mainly on a person who practices CAM and the person's contribution to the society, but not on the CAM. For example, several stories were covering how volunteered massage therapists served for the athletes during the Winter Olympics Games in January 2002. Discussions on this kind of topic were less likely to appear in newsgroups.

For most of the topics listed in Table 14, newsgroup messages and newspaper stories had similar proportion. Usage, function, price or effectiveness of CAM ranked first and second in topics for newsgroups and newspapers respectively. It indicates that CAM itself is a major focus for both newsgroup discussions and newspaper reporting. In some topics, newsgroups and newspapers had more obvious similarities. For instance, two messages and two news stories were used to warn the use of Kava, a supplement used by plenty of people to relieve stress, anxiety and insomnia. Because in March 2002, the U.S. Food and Drug Administration (FDA) linked the supplement to severe liver disease, the warning of cautious using of Kava was sent out in both newsgroups and newspapers after then.

Although newsgroups and newspapers shared similar distribution in many topics, the views and tongues on the same topic might be quite different sometimes. For example, when covering the report released by the White House Commission on Complementary and Alternative Medicine Policy (WHCCAMP), newspapers focused on the government's intention of encouraging the CAM development.

> White house paper praised the potential of alternative medicine and urged health insurance companies to cover more of its services. Employer-sponsored plans currently offer limited coverage for chiropractic treatment, acupuncture and massage therapy (*Chicago Daily Herald*, April 15, 2002).

In newsgroups, participants discussing on this report were worrying about the influence it might have on CAM regulations. The following is an example:

> The WHCCAMP is drafting its final report and there are indications that it will advocate tougher regulation or enforcement of alternative medicine, with

> enhanced roles for agencies like the Federal Trade Commission (*sci.med.diseases.hepatitis,* January 26, 2002).

So, even on the same topic, newsgroup discussions and newspaper coverage may be from different perspectives.

Source Types

In this study, sources were defined as references, which were used to provide information or opinion on CAM-related issues. Sources can be individuals (named or unnamed), institutions and organizations, documents, or certain media.

Each newsgroup message and news story might use several sources and these sources might be of different types. However, only source type was coded in this study for comparison. Although number of sources in news stories was often coded as a variable in content analysis studies (e.g., Conrad, 1999), counts of sources were not recorded in this study. Since the length of newsgroup message is hard to be coded, source numbers will have less comparability. As showed in Table 14, there were seven major types of sources used in newsgroups and newspapers.[5]

In the sample, 63.5% of all newsgroup messages (n = 162) and 78.4% of all news stories (n=149) used at least one type of source. Both newsgroup messages and news stories used three types of sources at most.

Significant differences were found in three types of sources ($p < .0001$). In the sample, newsgroup messages contained much more sources from the Internet and/or Web sites than news stories. Being consistent with the prediction in the second research hypothesis, 34.2% of all news stories used an expert source, while only 13.3% of

Table 14
Comparison of Source Types

	Newsgroup (N = 255) Percent of Messages	Newspaper (N = 190) Percent of Stories
Own experience, personal knowledge	18.0	22.1
The Internet/Web sites	24.7	6.8*
Newspaper, magazine, printed book	7.8	4.7
An expert or expert sources	13.3	34.2*
Administrators of government agencies	4.3	12.1
Friends and colleagues	4.7	1.6
CAM practitioners or business owners	4.3	33.7*
Other sources	2.4	1.6

Note. * A statistically significant difference at the .006 level ($p < .0001$)

newsgroup messages had an expert as reference. The second research hypothesis also assumed that participants in newsgroups are more like to use their personal experiences or knowledge than news stories. However, the result from the sample indicated that news stories using oneself as reference accounted for 22.1%, which is a little higher than the percentage in newsgroups. [6]

Significant difference also existed in the use of CAM practitioners or business owners as sources. About one-third of news stories used this type of source, while only 4.3% of newsgroup messages did. The huge distance between the sources used in the two media can be explained by the differences between topics. As showed above, the topic of expanding of CAM health care and industry accounted for nearly 30% of all the news stories. Moreover, stories of this topic are more likely to use a person from inside the industry or business than stories of other topics.

Source type differences between newsgroups and newspapers can also be explained by the relationship between topics and the use of sources. Table 15 and Table 16 list the topic-source type relation in newsgroup messages and news stories. For both newsgroups and newspapers, messages and stories with topics of "usage, function, price or effectiveness of CAM" and "providing a source or reference" accounted for the highest rate in using the Internet/Web sites as sources. These two topics accounted for similar percentage in all newsgroup messages and news stories (22.4% and 22.7% respectively). However, under these two topics, 45.6% of newsgroup messages used the Internet/Web sites as sources (n = 26), while only 20.9% of news stories did so. That's one major reason that newsgroup messages had a higher rate than news stories in using the Internet/Web sites as references.

For the use of expert sources, newsgroup messages didn't show any apparent pattern linking topics and source types together. However, for news stories, topics of "expanding of CAM health care or industry," "usage, function, price or effectiveness of CAM," and "concerns of side effects and potential danger of CAM" had relative higher numbers in using expert sources. Also, news stories of these three topics accounted for 39.2% of all newsgroup messages (n = 100). Similar to the expert source, CAM practitioners and business owner were most heavily used by news stories with topics of "expanding of CAM health care or industry," and "usage, function, price or effectiveness of CAM." These two topics accounted for 34.4% in all stories. But in newsgroup messages, no specific topic showed obvious favorite in using CAM practitioners and business owners as sources. So, higher rate of using experts and CAM practitioners and

Table 15

*Topic-Source Type Relation in Newsgroup Messages (*N = *255)*

Topics	Number of Messages	Messages Using Sources	Source Type							
			S1	S2	S3	S4	S5	S6	S7	S8
Seeking CAM on a disease(s)	7	2	2							
Seeking evidence on CAM	6	3	1			1				2
Seeking CAM providers	5	0								
Usage, function, price or effectiveness of CAM	31	28	16	9	1	4	1	3	1	2
Providing a source or reference	26	26	3	17	4	5			1	2
Alerting dangerous CAM or revealing fraudulent CAM	7	6		3	1	2	1			
Suggesting conventional medicine instead of CAM	5	1				1				
New study findings on CAM	8	8		3	2	7				
Advertising	6	4		2						2
Suspecting the effictiveness of CAM	10	7				3		3	2	1
Need for clinical evidence or scientific proving procedure on CAM	13	9	2	6		3	1	1		
Concerns of side effects or potential danger of CAM	11	8	5	2	1					
Politics or legislation of CAM industry	16	8		5	4		4			
Relationship between conventional medical system and CAM	30	16	7	2	4	2	2	1	1	2
People's attitude and beliefs of CAM	29	13	7	2	2	1		3		
CAM related lawsuits	5	3		3		1				
Expanding of CAM health care or CAM industry	8	4		2	1		1			
Health ethics of CAM practitioners	1	1				1				
Hulda Clark's case	3	1				1				
CAM research development	2	2		1		2				
Debates on how people should behave in newsgroup discussions	18	8	2	5					1	
Expressing emotions	5	2	1					1		
Accomplishments and social contributions of a CAM practitioner	–									
Others	3	2		1			1			

Note. S1 = Own experience, personal knowledge; S2 = The Internet/Web sites; S3 = Newspaper, magazine, printed book; S4 = An expert or expert sources; S5 = Administrators of government agencies; S6 = Friends and colleagues; S7= CAM practitioners or business owners; S8 = Other sources.

Table 16

Topic-Source Type Relation in Newspaper Stories (N = *190*)

Topics	Number of Stories	Stories Using Sources	Source Type							
			S1	S2	S3	S4	S5	S6	S7	S8
Seeking CAM on a disease(s)	–									
Seeking evidence on CAM	–									
Seeking CAM providers	–									
Usage, function, price or effectiveness of CAM	34	32	14	5	2	10		1		23
Providing a source or reference	9	8	1	4	2	1	1		1	2
Alerting dangerous CAM or revealing fraudulent CAM	6	6	1			3	4			
Suggesting conventional medicine instead of CAM	1	1	1							
New study findings on CAM	7	7	1	1	1	6				1
Advertising	–									
Suspecting the effictiveness of CAM	1	0								
Need for clinical evidence or scientific proving procedure on CAM	5	5	1	1		5	1			1
Concerns of side effects or potential danger of CAM	13	11	2		1	9		1		4
Politics or legislation of CAM industry	16	13				4	10			3
Relationship between conventional medical system and CAM	14	10	6			5	2		1	
People's attitude and beliefs of CAM	2	1	1							1
CAM related lawsuits	3	2		1		1	1			
Expanding of CAM health care or CAM industry	53	37	8		2	12	3	1		24
Health ethics of CAM practitioners	1	1		1		1				1
Hulda Clark's case	1	1			1	1				1
CAM research development	9	8	3			7				
Debates on how people should behave in newsgroup discussions	–									
Expressing emotions	–									
Accomplishments and social contributions of a CAM practitioner	12	3	1							2
Others	3	3	2				1		1	1

Note. S1 = Own experience, personal knowledge; S2 = The Internet/Web sites; S3 = Newspaper, magazine, printed book; S4 = An expert or expert sources; S5 = Administrators of government agencies; S6 = Friends and colleagues; S7= CAM practitioners or business owners; S8 = Other sources.

business owners as sources in news stories than in newsgroups messages rooted in the topic predominance.

Efficacy Claims

An efficacy claim was conceptually defined as a concise phrase or sentence that mentioned the effectiveness of a CAM therapy. If a newsgroup message or a newspaper story contained such a claim, the claim was further coded as efficacious, inefficacious, uncertain, or both.

Efficacy claims might contain some words very straightforward, saying that something is effective or not. Efficacious claims might contain the phrases as "relieve ailments, cure illness, alleviate aches and pains, be benefit from, feel much better, works for me, etc." Inefficacious claimed just said that CAM cannot do the above things. The following is an example of message with inefficacious claim:

> Basically, in terms of painkillers, as far as I'm aware there's nothing that can be bought over the counter that is as effective as prescription medication – that's why they're prescription only, because they're stronger! (*alt.support.chronic-pain*, February 28, 2002)

As shown in Table 17, about one-fourth of the messages and news stories contained an efficacy claim. Both newsgroup messages and news stories had a much higher rate of efficacious claims than inefficacious claims. In the sample, four newsgroup users said that the efficacy of a CAM therapy is uncertain, and three news stories contained both efficacious and inefficacious claims.[7]

Table 17
Comparison of Efficacy Claims

	Newsgroup (N = 255) Percent of Messages	Newspaper (N = 190) Percent of Stories
Efficacious	16.9	21.6
Inefficacious	6.3	2.6
Uncertain	1.6	0
Both	0	1.6
N/A	75.3	74.2

Opposed to the third research hypothesis, no significant difference was found in any of the five categories of efficacy claims. In the sample, the newspaper stories had a little higher rate (21.6%) than newsgroup messages (16.9%) to claim CAM as efficacious. Although researchers have doubted the credibility of online health information, the result of this study didn't suggest that CAM information from newsgroups are more questionable than information from newspapers. At least, newsgroup participants were not exaggerating the effectiveness of CAM blindly. They tended to be more critical to CAM than newspaper journalists did. The reason might be that the newsgroup users consisted of all kinds of persons: CAM supporters, opponents, doubters, and so on. But this study cannot answer the question of who exactly these people are.

CAM Categories

There were totally 107 CAM names recorded from the sample (See Appendix C for the list of CAM names). General CAM, which accounted for 50% of newsgroup messages and 30% of news stories, was mentioned most frequently. Table 18 and Table

19 list the top 10 CAM appeared in each of newsgroups and newspapers. Besides general CAM, herbal remedies, Chinese traditional medicine, acupuncture, massage, chiropractic, diet supplements, and vitamins were the same seven highest mentioned CAM shared by the two groups.

The present study used NCCAM's classification of CAM, and categorized the 106 CAM names, except for General CAM, into five domains:

1. Alternative medical systems

Alternative medical systems are built upon complete systems of theory and practice. Examples of alternative medical systems that have developed in Western cultures include homeopathic medicine and naturopathic medicine. Examples of systems that have developed in non-Western cultures include traditional Chinese medicine and Ayurveda.

2. Mind-body interventions

Mind-body medicine uses a variety of techniques designed to enhance the mind's capacity to affect bodily function and symptoms. Examples include meditation, prayer, mental healing, and therapies that use creative outlets such as art, music, or dance.

3. Biologically based therapies

Biologically based therapies in CAM use substances found in nature, such as herbs, foods, and vitamins. Some examples include dietary supplements, herbal products, and the use of other so-called "natural" but as yet scientifically unproven therapies (for example, using shark cartilage to treat cancer).

Table 18
Top 10 CAMs Mentioned in Newsgroup Messages

	Number of Messages	Percent (N = 255)
General CAM	128	50.2
Herbal remedies	22	8.6
Homeopathic remedies	22	8.6
Chinese traditional medicine	17	6.7
Chiropractic	15	5.9
Acupuncture	13	5.1
Vitamins	8	3.1
Diet supplements	7	2.7
Massage	6	2.4
Colon therapy/enemas	5	2.0
Reiki	5	2.0

Table 19
Top 10 CAMs Mentioned in Newspaper Stories

	Number of Stories	Percent (N = 190)
General CAM	55	28.9
Herbal remedies	54	28.4
Massage	47	24.7
Acupuncture	39	20.5
Yoga	21	11.1
Chiropractic	15	7.9
Vitamins	15	7.9
Chinese traditional medicine	12	6.3
Diet supplements	10	5.3
St. John's wort	10	5.3

4. Manipulative and body-based methods

Manipulative and body-based methods in CAM are based on manipulation and/or movement of one or more parts of the body. Some examples include chiropractic or osteopathic manipulation, and massage.

5. Energy therapies

Energy therapies involve the use of energy fields. They are of two types:

a. Biofield therapies are intended to affect energy fields that purportedly surround and penetrate the human body. Some forms of energy therapy manipulate biofields by applying pressure and/or manipulating the body by placing the hands in, or through, these fields. Examples include Qi gong, Reiki, and therapeutic touch.

b. Bioelectromagnetic-based therapies involve the unconventional use of electromagnetic fields, such as pulsed fields, magnetic fields, or alternating current or direct current fields.

Table 20 gives the examples in each of the CAM domain.

Table 20
Examples for the 5 Domains of CAM

	Examples of CAM Under Each Domain
1. Alternative Medical Systems	Ayurveda Homeopathic medicine Native American medicine Naturopathic medicine Traditional Chinese Medicine (e.g., acupuncture, Chinese herbal medicine)
2.Mind-Body Interventions	Meditation Hypnosis Guided imagery Prayer Mental healing Dance, music, art therapies
3.Biologically Based Therapies	Herbal Dietary supplements Vitamins Natural therapies
4.Manipulative and Body-Based Methods	Massage Chiropractic Osteopathic manipulation
5.Energy Therapies	a. Bio-field therapies (e.g., Qi gong, Reiki, and therapeutic touch) b. Bio-electromagnetic-based therapies

At least one CAM was mentioned in a single newsgroup message or newspaper story. At most, a newsgroup message contained 14 CAM names, while a news story contained 10. After the categorization, Compared results after the categorization were reported in Table 21.

Table 21
Comparison of CAM Categories

Categories of CAM	Newsgroup (N = 255) Percent of Messages	Newspaper (N = 190) Percent of Stories
General CAM	50.2	28.9*
Alternative medical systems	22.0	30.5
Mind-body interventions	2.4	11.6*
Biologically based therapies	30.0	44.2
Manipulative and body-based methods	9.4	3.0*
Energy therapies	6.7	2.0*

Note. * A statistically significant difference at the .01 level ($p < .0001$)

Four of the six categories showed significant differences ($p<. 0001$). Among the four categories, only in the mind-body interventions, had news stories have a higher rate than newsgroup messages. Newsgroup messages mentioned more CAM in general, manipulative and body-based methods, and energy therapies than news stories. Although news stories in the sample covered more alternative medical systems and biologically based therapies than newsgroups, differences in these two categories are not significant.

CONCLUSIONS

This study started with examining people's uses of online newsgroups. The content analysis of newsgroup messages showed four major purposes of people's uses of newsgroup on CAM-related issues: seeking information, providing information, discussing on a topic, and showing attitudes or expressing emotions. These purposes may differ from motivations reported by the users themselves. Uses and gratifications study used to explore people's motivations and needs sought by survey research. Based on the method used in this study, some self-reported motivations, such as seeking emotional support, looking for socializing, or even for entertainment purpose, were not expected from the content analysis. However, these motivations were in fact reflected in the content of newsgroups as well. For example, as showed in the following paragraph, a user had concluded people's reasons for participating in one CAM newsgroup—*misc.health.alternavtive*.

> Some of the regulars have already revealed their motivations. For example, IIRC, Happy Dog has stated that he posts here for entertainment... Some other reasons why I think NAMers (non-alt-med) post here (listed in no particular order): (1) To participate in interesting discussions. (2) To participate in debates and hone their debating skills. (3) To discourage people from using potentially dangerous alt-med treatments. (4) To learn about other treatments that people are using for their health problems. (5) They have had a personal experience with some alt-med treatment that has had a negative impact on themselves, their relatives, or other people they have known. (*misc.health.alternative*, January 27, 2002)

CAM controversies are directly mirrored in newsgroup discussions. People are turning to newsgroups to seek CAM information when they cannot find answers from

mainstream health care system or mainstream media. Others are providing information or personal suggestions to those who are looking for help. Discussions on CAM-related researches, legislations are also some major activities taking place in newsgroups. Besides the information transfer on CAM per se, newsgroups also provide people a place to show their attitudes to and beliefs in the controversial medicines. Similar to some interpersonal communications happened in real communities, discussions between people with different opinions on CAM sometimes grew into huge quarrels or even personal insults in the online communities. Fortunately, self-regulated activities were observed from the content at the same time. These people were criticizing the misuse of newsgroups on CAM discussion. Overall, it seems that, in health communication, the newsgroup serves as both a mass medium and an interpersonal medium.

The study secondly compared the newsgroup with a traditional mass medium—the newspaper. Differences between newsgroups and newspapers partly rooted in the nature of the media. As a medium in mass communication, traditional newspapers don't possess the characteristics of interactivity, asynchronicity, etc. As expected, some newsgroup activities, such as asking questions or expressing emotions, didn't occur in the newspaper coverage on CAM.

The research questions in this study were developed to examine the differences between newsgroup messages and newspaper stories. However, content analysis showed both similarities and differences. In particular, more similarities were observed than expected. For instance, newsgroups and newspapers shared most topics identified in this study. Newsgroup users and newspaper journalists were concerned about the effect of

the same CAM, were interested in the same CAM research, and were talking about the same CAM lawsuit. Newsgroup participants and newspaper paper reporters also share the same opinion of being discriminating and precautious when choosing and using CAM. Differences in topics still existed. When reporting CAM-related issues, newspapers tended to focus more on social news, which are more relative to the whole society, such as the increasing growth of CAM health care and industry, and the contributions of CAM practitioners. Newsgroup participants were less interested in these topics. Their discussions were focusing more on the CAM controversies. They tended to explain their own reasons of choosing or not choosing CAM. They criticized the CAM, as well as the conventional health care system.

Differences found in source types and CAM categories in fact can be explained by the differences in topics. It's not surprised to find that news stories contained more sources from the inside of CAM industry than newsgroup messages did, because newspapers had more coverage on the expanding of CAM industry. As the aging baby boomers in the U.S. today get growing concerns in fitness, relaxation, and exercises, it's not surprised either that newspapers gave more emphasis on the business of massage, medical spa, acupuncture, and yoga. In addition, from the perspective of information subsidy (e.g., Berkowitz & Adams, 1990), results found in source types here can give some suggestions to the public relation persons in CAM businesses on how to have more of their information covered by the mass media for free.

In contrast with the third hypothesis, newsgroups and newspapers didn't show significant difference in efficacy claims. This is consistent with the results from a former

study (Dube et al., 1999), that most U.S. elite papers had a positive coverage on CAM from1992 to 1997. However, newsgroup users were not as positive to CAM as expected. In fact, criticism of CAM in newsgroups was severer than in news reporting.

Newsgroups and newspapers have both similar and different functions in providing health and medical information. People use these functions to satisfy their needs. Uses and gratification researchers have indicated that in order to understand how media affect people, we must first understand how people use media (Katz, 1959). Content from the newsgroups reflects how people are using this medium. It also reflects the public's interest and needs in CAM-related issues.

One of the strengths of this study is its ability to reach a large number of individuals, without concern for regional or national boundaries. However, many newsgroups may have a large number of registered members, but a small number of regular visitors. As already indicated by researchers, about 90% of newsgroup users are quiet observers and "lurkers" who never participate (Ha, 1995). That means, in fact, the content of newsgroups can only represent the uses of those who really participate in the discussions. Also, newsgroups and newspapers may have difference audience. This study cannot directly answer the question of whether people are seeking the same needs from newsgroups and newspapers. However, it's clear that the online newsgroup is more likely to serve as a complement rather than a substitute to the old print media at the current stage. Moreover, for people without computers and with limited access to the Internet, newsgroups or the Web sites would not be easy ways of obtaining information or contacting others. They still have to rely on traditional media to fulfill their needs,

such as the needs of CAM information. From the comparison of the new and the old media, the results of this study may give some advices to the traditional media on how to fulfill people's needs in CAM information and how to compete the challenges from the new media in the information age. Another limitation of this study is its inability to reveal the demographic characteristics of the newsgroup users. Because newspapers and newsgroups may have different audience, further understanding of the audience difference will help answer the questions of who is using which medium and why.

Media contribute to the public's understanding of CAM. Despite concerns about the credibility of health information on the Internet have been raised among medical profession (e.g., Berland, Elliott, & Morales, 2001), study showed that, in general, people perceived Internet sources as credible as TV or magazines, but not as credible as newspapers (Flanagin & Metzger, 2000). It's unknown that whether people deem CAM information from the newsgroups as credible as those from the print media. Future study can also be done to answer whether the use of newsgroups and newspapers will finally influence people's attitude and real use of CAM differently.

NOTES

1. Information about Google Groups can be found at http://groups.google.com/googlegroups/basics.html

2. At the time of data collecting, Los Angeles Times was not accessible via Lexis-Nexis database.

3. It's difficult to tell whether a newsgroup is from the U.S. or not. Because of the nature of the Internet, the original setting up of a newsgroup might take place in any part of the world. Participants in a newsgroup may also come from all around the world, as long as they subscribe to the newsgroup. When searching the Usenet newsgroups by keywords, Google search engine can only restrict the results in one language, but not in the geographic scope of the U.S.

4. In this study, phrases referred to CAM but not a specific CAM name, such as alternative medicines, complementary therapies, unconventional treatments, holistic healings, etc. were coded as General CAM.

5. Expert sources included scientists, researchers, physicians, scientific studies, and academic journal articles.

6. In news stories, personal experience and knowledge might be from the journalist himself/herself, or from an interviewee.

7. Newspaper stories coded as "both" might cover two CAM therapies and claim one is efficacious and the other is not. The stories might also cover only one CAM, and claim it as efficacious for one certain ailment but not for other conditions.

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APPENDIX A

LIST OF NEWSGROUPS

1. alt.aromatherapy
2. alt.atheism
3. alt.baldspot
4. alt.books.marketplace
5. alt.callahans
6. alt.cats
7. alt.comp.freeware
8. alt.dreams.prophetic
9. alt.drugs.salvia
10. alt.fan.rush-limbaugh
11. alt.fan.scarecrow
12. alt.fan.tolkien
13. alt.folklore.aromatherapy
14. alt.folklore.herbs
15. alt.forsale.nutrition
16. alt.global-warming
17. alt.gossip.celebrities
18. alt.health
19. alt.healing.reiki
20. alt.hypnosis.hypnotherapy
21. alt.idiots
22. alt.insight
23. alt.lifestyle.all-faiths
24. alt.magick
25. alt.magick.tyagi
26. alt.med.allergy
27. alt.med.cfs
28. alt.med.fibromyalgia
29. alt.meditation.transcendental
30. alt.paranormal
31. alt.paranormal.reincarnation
32. alt.parenting.solutions
33. alt.pets.rodents.rats
34. alt.philosophy.zen
35. alt.politics.democrats.d
36. alt.politics.republicans
37. alt.politics.usa.republican
38. alt.rec.bicycles.recumbent
39. alt.religion.buddhism.tibetan

40. alt.religion.kibology
41. alt.religion.shamanism
42. alt.sex.stories.d
43. alt.skincare.acne
44. alt.smokers.pipes
45. alt.society.liberalism
46. alt.support.anxiety-panic
47. alt.support.arthritis
48. alt.support.asthma
49. alt.support.attn-deficit
50. alt.support.autism
51. alt.support.breast-implant
52. alt.support.cancer
53. alt.support.childfree
54. alt.support.chronic-pain
55. alt.support.crohns-colitis
56. alt.support.depression
57. alt.support.depression.manic
58. alt.support.depression.manic.moderated
59. alt.support.depression.medication
60. alt.support.depression.teens
61. alt.support.diabetes
62. alt.support.diet
63. alt.support.diet.low-carb
64. alt.support.dystonia
65. alt.support.endometriosis
66. alt.support.epilepsy
67. alt.support.foster-parents
68. alt.support.hepatitis-c
69. alt.support.herpes
70. alt.support.lupus
71. alt.support.marriage
72. alt.support.menopause
73. alt.support.mult-sclerosis
74. alt.support.schizoaffective
75. alt.support.schizophrenia
76. alt.support.shyness
77. alt.support.sinusitis
78. alt.support.social-phobia
79. alt.support.thyroid
80. alt.support.tinnitus
81. alt.support.tourette
82. alt.tv.x-files
83. alt.zen

84. aus.electronics
85. aus.invest
86. c20.0056
87. edm.general
88. grk.talk.disabled
89. it.salute.tumori
90. misc.activism.progressive
91. misc.consumers.frugal-living
92. misc.education.medical
93. misc.fitness.aerobic,
94. misc.fitness.walking,
95. misc.fitness.weights
96. misc.health.alternative
97. misc.health.arthritis
98. misc.health.diabetes
99. misc.kids
100. misc.kids.health
101. misc.kids.pregnancy
102. misc.survivalism
103. news.admin.net-abuse.sightings
104. nl.scientology
105. own.health.aromatherapy,
106. rec.arts.books.tolkien
107. rec.aquaria.marine.reefs
108. rec.backcountry
109. rec.crafts.beads
110. rec.food.drink.tea
111. rec.games.frp.dnd
112. rec.motorcycles.harley
113. rec.sport.skating.ice.figure
114. rec.travel.cruises
115. sci.electronics.design
116. sci.environment
117. sci.life-extension
118. sci.med
119. sci.med.cardiology
120. sci.med.dentistry
121. sci.med.diseases.cancer
122. sci.med.diseases.hepatitis
123. sci.med.diseases.lyme
124. sci.med.nutrition
125. sci.med.pharmacy
126. sci.med.prostate.prostatitis
127. sci.med.psychobiology

128. sci.physics
129. sci.skeptic
130. soc.culture.british
131. soc.culture.indian
132. soc.culture.malaysia
133. soc.culture.singapore
134. soc.culture.usa
135. soc.men
136. soc.retirement
137. soc.singles.moderated
138. soc.subculture.bondage-bdsm.femdom
139. talk.abortion
140. talk.politics.animals
141. talk.politics.medicine
142. talk.politics.misc
143. talk.religion.bahai
144. talk.religion.buddhism
145. talk.religion.newage
146. uk.business.agricultureuk.people.health
147. uk.misc
148. uk.people.health
149. uk.people.support.mental-health
150. uk.politics.drugs
151. uk.sci.med.pharmacy

APPENDIX B

LIST OF NEWSPAPERS

1. The Advocate (Baton Rouge, LA.)
2. Albuquerque Journal
3. Albuquerque Tribune
4. Anchorage Daily News
5. The Arkansas Democrat-Gazette
6. The Atlanta Journal and Constitution
7. Austin American-Statesman
8. Bangor Daily News (Bangor, Maine)
9. The Bismarck Tribune
10. The Boston Globe
11. The Boston Herald
12. The Buffalo News
13. The Capital (Annapolis, MD)
14. Capital Times (Madison, WI)
15. Chapel Hill Herald
16. Charleston Daily Mail
17. The Charleston Gazette
18. Chattanooga Times/Chattanooga Free Press
19. Chicago Daily Herald
20. The Columbus Dispatch
21. The Commercial Appeal (Memphis, TN)
22. Corpus Christi Caller-Times
23. Daily Camera
24. Daily News (New York)
25. The Daily News of Los Angeles
26. Dayton Daily News
27. The Denver Post
28. The Deseret News (Salt Lake City, UT)
29. The Florida Times-Union (Jacksonville, FL)
30. Fort Morgan Times
31. The Fresno Bee
32. The Herald-Sun (Durham, N.C.)
33. The Houston Chronicle
34. Intelligencer Journal (Lancaster, PA.)
35. The Jupiter Courier (Jupiter, FL)
36. Knoxville News-Sentinel (Knoxville, TN)
37. Las Vegas Review-Journal (Las Vegas, NV)
38. Lewiston Morning Tribune
39. Milwaukee Journal Sentinel

40. Modesto Bee
41. The New York Times
42. News & Record (Greensboro, NC)
43. The Oakland Tribune
44. Omaha World-Herald
45. The Oregonian
46. The Palm Beach Post
47. The Pantagraph (Bloomington, IL.)
48. The Patriot Ledger (Quincy, MA)
49. Pittsburgh Post-Gazette
50. Plain Dealer
51. The Post and Courier (Charleston, SC)
52. The Post-Crescent
53. Press Journal (Vero Beach, FL)
54. The Press-Enterprise (Riverside, CA.)
55. The Record (Bergen County, NJ)
56. The Richmond Times-Dispatch
57. Roanoke Times & World News
58. Rocky Mountain News (Denver CO)
59. San Antonio Express-News
60. The San Diego Union-Tribune
61. The San Francisco Chronicle
62. The Santa Fe New Mexican
63. Seattle Post-Intelligencer
64. The Seattle Times
65. Sebastian Sun (Sebastian, FL)
66. South Bend Tribune
67. St. Louis Post-Dispatch
68. St. Petersburg Times
69. Star Tribune (Minneapolis, MN)
70. The Stuart News/Port St. Lucie News (Stuart, FL)
71. Sunday News (Lancaster, PA)
72. The Tampa Tribune
73. Telegram & Gazette
74. The Times Union (Albany, NY)
75. The Times-Picayune (New Orleans)
76. Tulsa World
77. Ventura County Star
78. The Virginian-Pilot (Norfolk, Va.)
79. The Washington Post
80. The Washington Times
81. Wisconsin State Journal

APPENDIX C

LIST OF CAM NAMES

1. Acupressure strips
2. Acupuncture
3. Aerobic exercise
4. Amino acids
5. Aromatherapy
6. Astragalus
7. Ayurveda
8. Bee venom/bee sting therapy
9. Beta carotene
10. Black cohosh
11. Calcium
12. Chelation therapy
13. Chinese traditional medicine
14. Chiropractic
15. Chromium
16. Coffee enema
17. Colloidal silver
18. Colon therapy/cleansing
19. Damaiana
20. Dietary modification
21. Diet supplements
22. Ear candling
23. Echinacea
24. Electric probe/electrodiagnostic devices
25. Electroceutical therapy
26. Energy therapy
27. Enzymes
28. Ephedra
29. Essential fatty acids
30. Exercise
31. Flaxseed
32. Flower powder remedy
33. Folic acid
34. Garlic
35. General CAM
36. Ginger
37. Ginkgo/Ginkgo biloba
38. Ginseng/ginseng patch
39. Graviola

40. Hair analysis
41. Healing touch therapy
42. Herbal remedies
43. Homeopathic remedies
44. Hyper baric oxygen procedure
45. Hypnotherapy
46. Immunocal
47. Immunosuppressant
48. Iron
49. JMT technique
50. Kava
51. Kung fu (martial arts)
52. Lapacho
53. Laughing
54. Maca
55. Magnesium
56. Malaria
57. Marijuana
58. Massage
59. Med Spa
60. Meditation
61. Mercury amalgams
62. Mercury and sulpher
63. Milk thistle
64. Mind-body therapy
65. Mineral
66. Mint
67. Native or indigenous forms of healing
68. Natural therapies
69. Naturopathic medicine
70. Neural therapy
71. Neurofeedback
72. Noni
73. Nutrition
74. Omega-3 fatty acid
75. Opium
76. Oregano oil (herb)
77. Osteopathic
78. PCSPES
79. Pet therapy
80. Physical therapy
81. Pilates
82. Positive thinking/visualization
83. Potassium

84. Pray
85. Qi gong
86. Raindrop therapy
87. Red clover
88. Reiki
89. Saw palmetto pills
90. Shark cartilage
91. Soy
92. SPES
93. Spiritual healing
94. St. John's wort
95. Steroid precursor
96. Tai chi
97. Tea
98. Tea tree oil
99. Tibetan healing system
100. Tofu
101. Turmeric
102. Ubiquinone 10 and succimic acid
103. Vinegar
104. Vitamin
105. Yoga
106. Zapper
107. Zinc lozenges

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