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Patient Disclosure of Complementary and Alternative Medicine and the Patient-Provider Relationship

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PATIENT DISCLOSURE OF COMPLEMENTARY AND ALTERNATIVE MEDICINE AND THE PATIENT-PROVIDER RELATIONSHIP

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ABSTRACT

Complementary and alternative medicine (CAM) is becoming increasingly prevalent in the United States, with notable usage of supplements, deep breathing exercises, and chiropractic care. Despite this influx of CAM, nearly half of patients do not report their CAM use to their medical provider (Jou & Johnson, 2016). Disclosing these practices to a medical provider is pertinent to patient safety, as a number of potential drug interactions and side effects are associated with different CAM practices. Current literature illustrates specific provider attributes help facilitate an open dialogue with patients, or more specifically, a positive patient-provider relationship. This research study examines if a correlation exists between provider characteristics and patient disclosure of CAM use. Information was gathered via survey, and quantitative data were statistically analyzed using the Likert scale. Based on the results, all patients in the survey highly valued the following characteristics in their medical provider: a provider's expanse of medical knowledge, proficient communication skills, being incorporated into the medical decision-making process, empathy, and amount of time spent during the visit. However, no statistically significant difference exists between disclosure and non-disclosure groups for any of the preceding provider attributes listed. Additionally, a provider's relationship with their patient did not appear to increase the likelihood of patient disclosure regarding CAM use.

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Introduction

Every patient deserves the utmost care. Some patients opt to see their medical provider on a routine basis. Other patients may fear the thought of a clinic or hospital or have a general mistrust of people in white coats, leading them to seek alternative remedies for their health. Currently, one-third of adults utilize complementary and alternative medicine (CAM) in the United States (Barnes, Bloom, & Nahin, 2008). As more patients follow this trend, the need for disclosure between patients and their medical providers is increasingly vital. A provider's ability to facilitate an open dialogue will inevitably increase a patient's satisfaction and compliance (Peterson et al., 2016). This chapter will introduce complementary and alternative medicine, the problem statement, the purpose of the study, the significance of the problem, research questions posed, limitations to the study, definitions of terms, and ultimately, CAM disclosure's potential impact on the patient-provider relationship.

Background of the Problem

Complementary and alternative medicine has roots dating back to approximately 3,000 BC, and the practice was first documented in the United States beginning in the early 19th century (Ehrlich, 2015).

The NCCAM [National Center for Complementary and Alternative Medicine] defines CAM as "a group of diverse medical and health care systems, practices, and products that are not presently considered to be part of conventional medicine." NCCAM further classifies CAM therapies into five distinct categories:

- alternative whole medical systems (homeopathic and naturopathic medicine, Chinese medicine, and Ayurveda)

- mind-body interventions (meditation, prayer, mental healing, art, music, and dance therapy)
- biologically based therapies (herbs, foods, vitamins, and other dietary supplements, including natural products such as shark cartilage)
- manipulative and body-based methods (chiropractic and osteopathic manipulation, massage)
- energy therapies (*qi gong*, Reiki, therapeutic touch, or electromagnetic exposures) (Ventola, 2010, p. 515).

The CAM industry presents a significant financial cost to the patient. In 2007 alone, approximately 354 million visits to CAM practitioners were documented and an estimated 835 million CAM products were purchased (National Center for Complementary and Integrative Health [NCCIH], 2017b). Nearly $34 billion is spent on CAM annually, accounting for 11.2% of total out-of-pocket expenditures on health care in the United States (NCCIH, 2017b). Patient disclosure of CAM usage to his or her provider is important because the provider can then educate the patient on the known efficacy of CAM therapies. With this information, the patient can make informed decisions and choose to spend their resources on therapies that are evidence-based, whether that is CAM or conventional medicine.

Numerous CAM therapies have significant drug interactions, potential detrimental side effects, and/or may not contribute to the treatment of the disease, which adds to the importance of full patient disclosure (Cohen, 2002). In the United States, drug regulations tend to emphasize safety rather than efficacy with the primary goal of protecting consumers against fraud, dangerous products, or practitioners (Bodeker and Burford, 2006). Many CAM therapies lack governmental oversight, such as mind-body interventions, manipulations and body-based

methods, and energy therapies. Unlike pharmaceuticals, which go through rigorous testing to account for both safety and efficacy, supplements do not need to pass FDA approval to be marketed in the United States (Ventola, 2010).

Despite lack of government control, many individuals consider CAM to be a safer alternative to conventional medicine and perceive CAM as being "natural" ("Why People Use Complementary or Alternative Therapies," 2014). However, many toxicities have resulted from combining certain CAM therapies with different medications (Cohen, 2002). A common example of a negative drug interaction is St. John's wort. This plant is commonly used as a CAM treatment for depression, but St. John's wort also appears to increase the risk of coagulopathies in patients (Elmer, Lafferty, Tyree, & Lind, 2007). Other frequently utilized CAM products that have been shown to have negative drug interactions include valerian and hawthorn. Medication interactions may be synergistic or antagonistic with CAM, which makes patients' disclosure of CAM critical to prevent serious and possibly life-threatening interactions (Elmer et al, 2007).

Current research shows that nearly half of people who utilize CAM do not disclose their use to medical providers during medical consultations (Jou & Johnson, 2016). A meta-analysis also found that non-disclosure of CAM by patients was as high as 72% (Robinson & McGrail, 2004). The most common reasons why patients did not disclose CAM use to their providers was because the patients were concerned that disclosure might negatively affect their relationship with the provider, the provider did not ask, or the patient did not think the provider was interested (Robison & McGrail, 2004).

Several other studies show that patients value medical care providers who convey empathy, communicate effectively, and establish trust with their patients (Anderson, Barbara, and Feldman, 2007). Patients may refrain from disclosing their CAM practices because their

provider does not meet their expectations in these regards. Fostering an open relationship between patients and providers is crucial for overall patient care. In one study, researchers from Harvard Medical School randomly assigned patients with irritable bowel syndrome (IBS) to acupuncture care with either minimal provider interactions or supportive provider interactions (Conboy et al., 2010). The supportive interactions meant providers asked detailed questions, had empathetic facial expressions, used active listening techniques, and expressed positive treatment expectations (Conboy et al., 2010). Comparison of the two patient groups found significant improvement in patients' IBS symptoms when they received acupuncture with provider support compared to acupuncture alone (Conboy et al., 2010). This study demonstrates the importance of a supportive and positive patient-provider relationship. When the relationship improves, patient health improves as well (Conboy et al., 2010).

Problem Statement

Despite the long-standing history of CAM, a large percentage of patients are not disclosing CAM use to their conventional provider (Robinson & McGrail, 2004). Current literature provides a limited understanding of how CAM disclosure can be encouraged by the patient-provider relationship and/or provider characteristics.

Purpose of the Study

The purpose of this research study is to further understand the complex patient-provider relationship specifically by assessing which attributes and characteristics a provider exhibit that may facilitate a patient's willingness to disclose the use of CAM. The information this study gathers will allow medical providers to better serve their patients by learning how to communicate with patients about CAM use and encourage CAM disclosure.

Significance of the Problem

A disconnect often exists between patients and their providers, which can impede communication between the two. Patients who do not feel comfortable communicating with their provider may not be as open about their medical history, especially regarding their usage and disclosure of CAM, limiting the quality of care being given to the patients. Current studies tend to focus on why patients choose not to disclose their use of CAM and do not focus on what a provider can do to encourage CAM disclosure. How providers engage their patients regarding CAM use is essential because open dialogue can enable providers to gain a comprehensive knowledge of their patients' overall therapy modalities. This research will help providers effectively treat patients through the integration of CAM and conventional medication.

Research Questions

The following research questions will be addressed:

- What attributes or characteristics do providers exhibit that help encourage a patient to disclose their use of CAM?
- What is the correlation between CAM disclosure and positive patient-provider relationships?

Limitations of the Study

As with any study, limitations exist. This study's sample will be confined to survey respondents at Life Preserver, a whole foods store in Brainerd, MN. This population is not representative of the United States population as a whole in terms of ethnicity, income, sex, or age. Additionally, the feedback from the survey will likely be subjective, due to the nature of the questions asked. The study will interpret this feedback into quantitative data which will then be statistically analyzed.

Delimitations of the Study

In addition to limitations, there are also delimitations. Medical providers, such as physicians, physician assistants, and nurse practitioners will not be surveyed, as the patient's perspective is the focus of this study. Only participants who have used CAM and have seen a medical provider in the last 12 months will be assessed. Surveys will be conducted in a written English format, and therefore, will exclude those who are non-English speaking or illiterate. Moreover, responses will be measured using a Likert scale. The survey will give a precise definition of what the study defines as CAM. However, participants will be unable to ask for clarification.

Definitions of Terms

The following terms used in this research will be defined as:

- Complementary and alternative medicine: any non-mainstream medicine, which includes, but is not limited to, vitamins and minerals not prescribed by a medical provider, herbs, probiotics, mind-body therapies, traditional healers, ayurvedic medicine, traditional medicine, homeopathy, and naturopathy.
- Medical provider: medically trained and licensed personnel including physicians, physician assistants, and nurse practitioners.
- Conventional medicine: evidence-based medicine practiced by licensed physicians, physician assistants, nurse practitioners, pharmacists, and therapists.
- Sample population: individuals surveyed who are residents of Minnesota, have seen a medical provider within the last twelve months, and have utilized some form of CAM, as defined above, in the last twelve months.

- CAM disclosure: respondents who have utilized CAM and have also disclosed that usage to their medical providers within the past year.

Conclusion

Despite the long-standing history of CAM, current literature has a limited understanding of how CAM disclosure can be encouraged by the patient-provider relationship. The study is attempting to further understand this complex relationship by specifically addressing CAM disclosure and the patient's perception of his or her provider. In Chapter 2, a literature review encompassing discussion of the history of CAM, its prevalence in the United States, and CAM regulation and safety will be thoroughly addressed. In addition, the study will examine providers' exhibited attributes that lead to patient satisfaction, as well as the traits that patients seek out in providers. CAM disclosure and patient-provider relationships will also be addressed.

Chapter 2: Literature Review

Introduction

This chapter reviews currently available literature and discusses the history of complementary and alternative medicine, CAM prevalence in the United States, and the regulation and safety of CAM. Furthermore, attributes that lead to patient satisfaction and factors that determine which providers are sought out by patients will also be examined. Lastly, CAM disclosure and the patient-provider relationship will be addressed.

Defining Complementary and Alternative Medicine

Complementary and alternative medicine encompasses a substantial collection of healthcare treatment and practices. Complementary medicine is typically defined as non-mainstream practices that are used in conjunction with conventional medicine (NCCIH, 2006). On the other hand, alternative medicine is non-mainstream practices that are utilized in place of conventional medicine (NCCIH, 2006). The term CAM is an umbrella term used to describe both types of non-mainstream practices. People rarely use only alternative medicine, as most use non-mainstream in conjunction with conventional treatments (NCCIH, 2006).

CAM is divided into two main classifications: natural products and mind-body practices (NCCIH, 2006). Natural products, including herbs, vitamins, minerals, and probiotics, are sold by many providers and retail stores as dietary supplements. Common herbs include acai, aloe vera, cinnamon, cranberry, echinacea, garlic, ginger, green tea, essential oils, St. John's wort, and turmeric (NCCIH, 2006). Vitamins and minerals are organic substances that are needed in small amounts for the normal functioning of the body (National Institute on Aging, 2017). Probiotics are microorganisms which are ingested or applied to the skin with the intent of

inducing health benefits (National Center for Complementary and Integrative Health [NCCIH], 2017a).

Mind and body practices are procedures or techniques which are administered by a trained practitioner (NCCIH, 2006). These practices are utilized with the belief that the mind plays an important role in the body's physical health. The National Center for Complementary and Integrative Health states that the most common types of mind and body practices include deep breathing, yoga, tai chi, qi gong, chiropractic care, meditation, massage therapy, progressive relaxation, and guided imagery (2006). Practices emphasize certain breathing techniques, relaxation, concentration, body positions, and gentle movement (NCCIH, 2006).

Most CAM therapies fall into the categories of natural products or mind and body practices (NCCIH, 2006). According to the National Center for Complementary and Integrative Health (2006), all remaining CAM practices fall into a third miscellaneous category. This category includes ayurvedic medicine, traditional Chinese medicine, homeopathy, and naturopathy (NCCIH, 2006).

Ayurvedic medicine is a form of CAM which claims that each person has energies, called doshas, which determine how the person should eat, exercise, and maintain a healthy lifestyle (Freeman, 2003). Ayurvedic medicine attempts to prevent illness by balancing the body, mind, and consciousness through the use of herbal remedies, yoga, meditation, diet, and lifestyle (Freeman, 2003).

Traditional Chinese medicine (TCM) is based on the idea that there are opposing energies, defined as yin and yang (Freeman, 2003). TCM practitioners also believe that in order for patients to remain healthy, they must have a balanced and free-flowing qi, energy within people (Freeman, 2003).

Homeopathy is the belief in a law that states "like cures like," meaning that a medicine can cure a person with a certain illness if the same medicine would cause a similar illness in a healthy person (National Center for Homeopathy, 2017). For example, small doses of an allergen such as pollen can cause a person with seasonal allergies to become desensitized to the pollen. Extremely small doses are given to patients and are claimed to be non-toxic and safe for everyone including pregnant women, newborns, and children (National Center for Homeopathy, 2017).

Naturopathy is a combination of many of the above practices and also includes manipulative therapy, acupuncture, prescription medication, natural childbirth, clinical and diagnostic testing, and injection therapy (The American Association of Naturopathic Physicians, 2011). The American Association of Naturopathic Physicians (2011) states that naturopathic medicine is based on the following principles: the healing power of nature, identifying and treating the cause, doing no harm, the doctor as the teacher, treating the whole person, and disease prevention.

Many healthcare facilities are bringing complementary and conventional medicine together in an attempt to treat the whole patient (NCCIH, 2006). This type of healthcare is known as integrative medicine. Integrative medicine is becoming increasingly common throughout the United States, with research and usage being focused on pain management, relief of symptoms in cancer patients, and promotion of healthy behaviors (NCCIH, 2006).

History of Complementary and Alternative Medicine

Herbal supplements have a steadfast history of use around the world (Ehrlich, 2015). Documentation of using plants for medical purposes dates back to ancient Chinese and Egyptian writings from around 3,000 BC (Ehrlich, 2015). African and Native American cultures utilized

the benefits of herbs in healing rituals (Ehrlich, 2015). Interestingly, historians found that people in different parts of the world were using similar plants for similar medical purposes (Ehrlich, 2015). Chinese medicine has one of the longest histories, originating 4,500 years ago (Wong & Lien-teh, 1932). Although the time of conception of certain CAM therapies is unknown or disputable, most forms of CAM have a longer history than that of conventional medicine (Ehrlich, 2015).

Complementary and alternative medicine was introduced into the United States during the late 19th century (Bassett, 2010). Scientists began to study plants and extract their active ingredients which proved to be effective in treating certain diseases (Ehrlich, 2015). As conventional medicine evolved and pharmaceutical drugs became more popular and effective, the use of herbal medicines declined (Ehrlich, 2015). The growing popularity of conventional medicine concerned certain individuals, leading to the formation of the Popular Health Movement (PHM), a group of citizens worried about the potential dangers, cost, and supposed ineffectiveness of conventional medicine (Freeman, 2003). This group successfully lobbied states to allow for certain CAM therapies within the United States (Freeman, 2003).

Although scientific discoveries in the 19th century led to a major decline in the use of herbal and other forms of alternative medicine, the use of CAM has had a resurgence in popularity in the United States over the last 30 years (Bassett, 2010). Some feel that mainstream medicine is associated with the potential to do more harm than good and therefore turn to CAM (Emst, 2001). Because of the increase in CAM use, more and more medical schools are incorporating CAM into their curricula (Ehrlich, 2015).

Complementary and Alternative Medicine Prevalence in the United States

According to the 2007 National Health Interview Survey (NHIS), 38% of nearly 76,000 adults in the United States used some form of CAM within twelve months of the survey (Barnes et al., 2008). Additionally, children with parents who used CAM were twice as likely to use CAM themselves (Barnes et al., 2008). The largest percentage of CAM use in the U.S. are nonvitamin, nonmineral, natural products (18%), deep breathing exercises (13%), chiropractic care (9%), massage (8%), and yoga (6%). Of the natural products, the most commonly used in order of prevalence were fish oil, glucosamine, echinacea, flaxseed oil, and ginseng (Barnes et al., 2008).

The NHIS also found that CAM was most often used in adults to treat back, neck, or joint pain, stiffness, arthritis, and musculoskeletal issues (Barnes et al., 2008). In the same survey, CAM was found to be most often used in children for back or neck pain, head or chest colds, anxiety, and attention-deficit/hyperactivity disorder (Barnes et al., 2008). Overall, the study found that CAM is used more frequently among women ages 30-69, persons with higher education and/or wealth, persons living in the Western United States, and former smokers. Additionally, those with private health insurance were more likely to use mind-body therapies as well as biologically based CAM therapies, than those with public health insurance or those who are uninsured (Barnes et al., 2008).

Prevalence of CAM also appears to be related to sexual orientation and race. A study of 1,300 women found that homosexual women were more likely to use CAM compared to heterosexual women (Smith et al., 2010). The study also found that the women who used CAM tend to be Caucasian with higher education, reside in an urban area, and have a higher spirituality rating (Smith et al., 2010).

Complementary and Alternative Medicine Regulation and Safety

Only 25 of the 191 World Health Organization members have national policies regarding CAM usage (World Health Organization, 2002). Research efforts regarding CAM have been relatively limited in Western countries. The focus of most studies has been centered on either herbal medicine, due to its potential for exploitation in drug discovery, or acupuncture, because of its high-risk association with infection (Bodeker and Burford, 2006). CAM therapies, such as mind-body interventions, manipulations and body-based methods, and energy therapies, are not regulated by the U.S. government. Additionally, as opposed to pharmaceuticals that undergo thorough testing to account for both safety and efficacy before being dispensed to the public, supplements do not need to pass FDA approval to be sold in the United States (Ventola, 2010).

Many individuals who utilize complementary medicine are at risk for potential drug interactions with conventional medicines (Cohen, 2002). One classic example is St. John's wort, used as an alternative for the treatment of depression (Cohen, 2002). St. John's wort has been shown to significantly lower the concentrations of concomitant drugs by inducing certain CYP enzymes (Cohen, 2002). Valerian, thought to treat insomnia, has been linked to pharmacodynamic effects on CNS depressants along with increasing drug concentrations of alprazolam in individuals being treated for anxiety or panic disorders (Cohen, 2002). Hawthorn, a plant used to remedy various cardiac diseases, has the potential to have additive vasodilation effects, especially when paired with calcium channel blockers, nitrates, and phosphodiesterase inhibitors (Cohen, 2002). The potential for cross-reactivity amongst CAM medicines and traditional medicines is significantly high. These possible medication interactions underline the importance of open dialogue between patients and their providers in the hopes of more patients choosing to disclose their CAM use (Cohen, 2002).

Patient Satisfaction and What They Seek Out in a Provider

Many factors contribute to the establishment of a positive patient-provider relationship (Anderson et al., 2007). Similar to a consumerism-driven business model, patients can ultimately dictate which providers they will seek out, follow-up with, and continue to see over the course of their medical history (Stephens, 2010). Patient satisfaction surveys have become the gold standard in regards to assessing the quality or perceived competency of providers. Based on these reports, communication, trust, and empathy appear to be recurrent themes found to be most valued by patients (Anderson et al., 2007).

Patients appreciate providers who take the time to listen, specifically drawing attention to the patient's concerns, and even engaging with the patient's family members (Anderson et al., 2007). Providers with strong interpersonal communication skills have the ability to establish a sense of camaraderie, partnership, and trust with their patients by integrating the patients' thoughts and opinions into the decision-making process (Anderson et al., 2007). Additionally, in a medical setting, the vast majority of the information presented to patients by providers is often technical and confusing. Patients admire providers who have the ability to propose complex medical terminology in an understandable, condensed, and conversational style format (Anderson et al., 2007). Moreover, patients value providers who have an open, nonjudgmental, and empathetic viewpoint and who listen to the patient's medical issues as well as their spiritual troubles (Anderson et al., 2007).

A perceived lack of shared decision-making or low trust of the provider has been shown to produce detrimental health effects, especially with regards to medication compliance (Bauer et al., 2014). In a study of adults with diabetes, patients who perceived less involvement in decision-making had doubled non-adherence rates compared to patients who felt they were fully

participating in their health-related discussions (Bauer et al., 2014). Furthermore, consistency in obtaining preventative cancer screenings was significantly impacted by the level of communication between the patient and the medical provider (Peterson et al., 2016). A simple recommendation by the provider was not enough; often a thorough discussion was required for optimal patient compliance (Peterson et al., 2016). Specifically, one of the greatest indicators for screening adherence was the amount of provider enthusiasm and encouragement perceived by patients, in addition to addressing patient barriers and thoroughly explaining of screening procedures (Peterson et al., 2016).

Disclosure of Complementary and Alternative Medicine and the Patient-Provider Relationship

A national survey of the United States adult population found that nearly half of CAM users did not disclose their CAM use to their medical provider (Jou & Johnson, 2016). This high level of nondisclosure is extremely problematic because many alternative CAM therapies such as vitamins, minerals, and herbal medicine can lead to reactions with conventional medications (Elmer et al., 2007). For example, one study of CAM users in Australia found that patients were at increased risk of blood coagulation when they combined garlic, ginkgo, ginseng, or St. John's wort with their prescribed warfarin (Elmer et al., 2007). When this information is not disclosed, both the provider and the patient are unaware of how ineffective the warfarin will be, thereby placing the patient in danger of clotting (Elmer et al., 2007).

The types of CAM patients use are important because different types have variable rates of CAM disclosure. Patient disclosure of CAM is higher in CAM delivered by a professional, such as chiropractic or acupuncture, compared to self-delivered CAM, such as vitamins and herbal medicines (Chao, Wade, & Kronenberg, 2008). This study suggests that patients will

disclose their professional-delivered CAM practices more often if the CAM practice is perceived as legitimate, but self-delivered CAM may be more important to disclose due to possible contraindications with conventional medications (Chao et al., 2008).

In order to better encourage CAM disclosure, understanding who is more likely to divulge this information is imperative. One study found that Caucasian persons are more likely to disclose CAM use compared to African-Americans, Latinos, and Asian Americans (Chao et al., 2008). Interestingly, when the patients had a stronger relationship with their primary care provider, the racial differences in CAM disclosure were no longer statistically significant (Chao et al., 2008). CAM disclosure is also more likely amongst people who are married, reside in the northeast of the US, have poor health, and/or are female (Chao et al., 2008).

Complementary and alternative medicine disclosure is vital for optimal patient care, but disclosure is often hindered by a poor patient-provider relationship. Robinson and McGrail (2004) reviewed 12 different studies evaluating non-disclosure of CAM and found the most common reasons for not disclosing CAM use to medical providers is fear of negative responses from their provider, patients did not believe their provider needed to know, and the provider did not ask or seemed disinterested. This same review found non-disclosure rates between CAM users as high as 72% (Robinson & McGrail, 2004). The authors suggest patients do not disclose their CAM use because of previous bad experiences with providers or because they want a higher sense of control of their health care (Robinson & McGrail, 2004). The more insight there are about reasons for nondisclosure, the better providers can understand patient decision-making and encourage the disclosure of CAM (Robinson & McGrail, 2004). For example, providers can facilitate a discussion about CAM and encourage the patient that CAM is relevant information about his or her healthcare (Robinson & McGrail, 2004).

If patients have had negative experiences with their medical provider, they are also more likely to seek alternative therapies (Mao et al., 2008). One study found that cancer survivors with unmet needs, including emotional and physical, were 63% more likely to use CAM therapies compared to survivors who did not report any unmet needs (Mao et al., 2008). Another study by Thorburn, Faith, Keon, and Tippens (2013) found that patients who felt discriminated against by their providers were more likely to use herbal CAM therapies than patients who did not feel marginalized. These studies suggest if patients have a stronger relationship with their provider, the following occurs: the patients' needs are more often met, the patients feel more respected, and the patients would seek less additional CAM or conventional treatment (Mao et al., 2008; Thorburn et al., 2013).

According to the 2008 Health Information National Trends Survey, strong patient-centered communication resulted in less patient use of CAM therapies and a higher disclosure rate of CAM use to providers. Patient-centered communication was defined as provider driven communication, specifically, fostering relationships, responding to emotions, and enabling the patient's self-management (Faith, Thorburn, & Tippens, 2015). Additionally, patients who experienced this patient-centered communication were less likely to avoid their providers (Faith et al., 2015). This study further suggests the stronger the relationship is between patient and provider, the less likely the patient will avoid visiting his or her provider and will more often disclose CAM use (Faith et al., 2015).

Disclosure of CAM is not only positively correlated with patient-centered care but also positive CAM outcomes (Sirois, 2014). In one study, patient disclosure of CAM was higher when patients had positive health outcomes resulting from CAM and/or had higher patient-centered care, specifically personalized care from a primary care provider (Sirois, 2014).

Another study consisting of HIV-infected women found that the more engaging a provider is, the more likely the patient disclosed of her CAM use (Liu et al., 2009). Both studies further illustrate that the quality of the patient-provider relationship has an effect on CAM disclosure.

While many factors such as race or type of CAM are associated with CAM disclosure, the patient-provider relationship is important because this relationship is something providers can change. Providers can modify how they interact with their patients and encourage a trusting relationship. Therefore, there is a need for more research focusing on trust between a patient and provider and how this relationship correlates with improving CAM disclosure.

Conclusion

Complementary and alternative medical practices have been utilized for centuries, growing to encompass natural substances as well as mind and body maneuvers (Ehrlich, 2015). CAM's integration into the United States' market has been of particular importance due to its lack of regulation and potential for significant drug interactions and side effects (Ventola, 2010; Cohen, 2002). These possible dangers highlight the need for patient disclosure of CAM use and especially because only half of CAM users divulged their CAM usage to their providers (Jou & Johnson, 2016). The aim of this research is ultimately to understand which attributes or characteristics that a provider exhibit help encourages a patient to disclose their CAM use to that provider. Current literature has emphasized that patients have a desire for a provider with strong interpersonal communication skills who is trustworthy and empathetic (Anderson et al., 2007). From the information gathered by this study, medical providers will be able to apply these characteristics to their healthcare practice, thus facilitating open dialogue and a fully encompassing approach to a patient's overall health.

In Chapter 3, the study will discuss the methodology. Information will be gathered via a Likert survey and statistically analyzed. Study design, population, experimental procedures, limitations and delimitations, and data collection, will be discussed in depth.

Chapter 3: Methodology

Introduction

The purpose of this study is to determine if a correlation existed between the characteristics of the medical provider-patient relationship and a patient's willingness to disclose their CAM usage.

This research study addressed the following research questions:

1. Which attributes or characteristics do providers exhibit that help encourage a patient to disclose their use of CAM?
2. What is the correlation between CAM disclosure and positive patient-provider relationships?

Moving forward, the information gathered from this study may allow medical providers to better serve their patients by fostering enhanced communication. This chapter specifically discusses study design, the sample population, the experimental procedure, and data collection, as well as limitations and delimitations of the study.

Study Design

This study was a quantitative, observational study using case-control for ingroup comparison between participants who disclosed their CAM use to their providers versus participants who did not disclose CAM use. Data was collected using a survey that determines participants who use CAM therapies and whether or not they have disclosed their CAM use to their medical providers within the past 12 months; participants who do not meet these criteria were excluded from statistical analysis. The questionnaire retrospectively assessed the CAM users' relationships with their medical providers via a series of questions using five-point Likert scales. The quantitative values of the patient-provider relationship established by the survey were

statistically compared between the two groups of CAM users to determine if and how patient-provider relationships are correlated with CAM disclosure to medical providers. Data from these surveys were collected over a period of two weeks.

Population

The site chosen for this study was LifePreserver Natural Foods, located in the Brainerd Lakes area at 14715 Edgewood Dr N, Baxter, MN. Many of the customers who frequently visit the study site use different CAM therapies. LifePreserver Whole Foods is a small, family-owned health food store that sells a wide variety of vitamins, minerals, herbs, and other supplements. The store also sells specialty foods such as gluten-free, organic, and vegan options. Researchers chose this location because an assumed high percentage of participants will meet the qualifications for the survey (ie. are users of CAM and have seen a medical provider within the past 12 months). Furthermore, the population site was chosen because a researcher had connections to the owners of LifePreserver Natural Foods, who agreed to have their customers surveyed (Appendix D). Brainerd and Baxter are two towns adjacently located in Northern Minnesota. According to the 2018 United States Census Bureau, the population of Brainerd was 13,465 and Baxter was 8,314.

The following demographics of Brainerd were taken from the U.S. Census Bureau from 2013-2017 (U.S. Census Bureau, 2018):

1.) 92.0% of those over the age of 25 were high school graduates or higher and 19.7% had a Bachelor's degree or higher.
2.) The median household income was $34,358, and the poverty level was 16.4%.
3.) 10.3% of persons under the age of 65 years were without health insurance.

Respondents of the survey that qualified for statistical analysis were men and women 18 years old or older and were able to read the survey, which was only provided in English. The goal sample size for this survey was 30-50 participants.

Experimental Procedures

Permission was obtained from the owners of LifePreserver Natural Foods in Baxter, Minnesota to utilize their customers as potential participants in the survey (Appendix D). Paper copies of the survey were placed at the cashier counter for a period of two weeks in March of 2018, where LifePreserver staff requested customers to complete the survey. Names of the participants or any other type of identifying information were not obtained to establish participant confidentiality. Prior to asking any questions, the survey specifically informed the participants of nondisclosure, the survey's purpose, and any risks of the survey, as per IRB approval (Appendix C). Participants were also informed directly from the paper surveys that they were allowed to discontinue the survey at any time by discarding the survey and were encouraged to contact researchers for any questions or concerns about the study.

Participants were allowed to complete the survey in store, and once completed, participants were asked to return the survey to a locked box at the cashier counter that only the researchers had access to. Researchers were not present at the time the participants had taken the survey nor during survey submission.

After recording the data, the paper surveys were kept locked in Bethel University's Physician Assistant (PA) program office located at 2 Pine Tree Dr, Arden Hills, MN 55112, and shredded after completion of data analysis. The electronic data, while being analyzed, was stored on a password-protected computer owned by the researchers. After completion of the study, the

data was kept on an external storage device locked in Bethel University's PA program office for a minimum of five years, per security requirements of the Bethel University's PA program.

Data Analysis

The survey included questions about gender, age, and race, which was included purely for demographic information about the sample population. Through a series of yes or no questions, the sample population narrowed down participants to only those who have seen a medical provider and who have used any form of CAM therapy, both within the past 12 months. Next, participants were asked whether or not they have disclosed their use of a CAM therapy to their medical provider, and these responses were organized using the coding system, 1 = yes and 2 = no. Finally, participants were asked 10 questions using Likert scales assessing the patient-provider relationship from the patient's perspective of his or her provider (1 = completely disagree to 5 = completely agree).

CAM disclosure (yes or no response) and each patient-provider attribute (answered using a Likert scale) were analyzed for any correlation using a two-tailed t-test in Microsoft Excel on a password protected computer. An analysis of variance (ANOVA) was used to compare the three possible reasons for non-disclosure of CAM use to determine if the responses are statistically different from one another; the ANOVA was also accomplished using Microsoft Excel. Post hoc analysis using two-tailed t-tests was used for a positive ANOVA outcome to determine which responses were statistically different.

This study was a correlational study including the following two variables: participants' disclosure of CAM use to their medical provider within the past 12 months and the participants' relationship with their medical provider measured by the following provider attributes: medical knowledge, communication skills, ability to include the patient in the medical decision-making

process, provider empathy, provider time spent with the patient, patient satisfaction with the provider, and patient trust in the medical provider.

Reliability and Validity

The survey utilized was created by the researchers themselves for the specific purpose of this study. The questionnaire was original and not borrowed from any other research, and each question was created with the research questions in mind to establish the reliability of the survey. Because of the novelty of this survey, validity and reliability were difficult to establish. Therefore, both content validity and reliability of the survey were evaluated and enhanced by a small review panel of five individuals similar to the expected survey population. The review panel consisted of family and friends of the researchers who had a similar education level as the predicted sample population, use some form of CAM, and were not students or educational faculty of Bethel University.

Limitations

Within the experimental procedure, several limitations existed. This study's sample was confined to survey respondents at LifePreserver. This population is not representative of the United States population as a whole in terms of ethnicity, income, sex, or age. Furthermore, the researchers were relying on customer willingness to take the survey and honesty with their answers. Additionally, the feedback from the survey was subjective, due to the nature of the questions about attributes related to patient-provider relationships. The study interpreted this feedback into quantitative data via Likert scale answers which were statistically analyzed.

Because the study was an observational study of two individual variables that were not being directly affected by the study, researchers can only assess the correlation between the two variables. No evidence for cause and effect was present and researchers were not able to

determine if patient-provider relationships affected CAM disclosure, if CAM disclosure affected the patient-provider relationship, or if a third unobserved variable had affected both CAM disclosure and the patient-provider relationship.

Delimitations

In addition to limitations, delimitations were another component to consider. Medical providers, such as physicians, physician assistants, and nurse practitioners, were not surveyed, as the patient's perspective was the focus of this study. Only participants who have used CAM and have seen a medical provider in the last 12 months were surveyed. Surveys were conducted in a written English format, and therefore, excluded those who are non-English speaking or illiterate. Moreover, responses were measured using a Likert scale. The survey gave a precise definition of what the study defined as CAM, however, participants were unable to ask for clarification.

Conclusion

In conclusion, a paper survey was distributed to LifePreserver customers in an attempt to assess and understand which, if any, attributes of the medical provider-patient relationship were correlated with patient disclosure of CAM. Chapter 4 presents the results of the statistical analysis and cite any statistically significant relationships, and Chapter 5 summarizes the study's findings in relation to the researcher's literature review. Researchers then make inferences about possible causations for any observed correlations between patient-provider relationships and CAM disclosure. Further limitations of the study are discussed in detail, and lastly, the potential for further research in this area is examined.

Chapter 4: Results

Introduction

This chapter will display and analyze the data collected from surveys completed by customers at LifePreserver Natural Foods in Baxter, Minnesota. Strict standards were applied to the participants in order to determine who qualified for the study. Demographics, including sex, age, and ethnicity, were examined to provide a snapshot of the sample population. Types of provider and disclosure rates were then reviewed. An open-ended question was used to determine the different types of CAM utilized. Excel was used to analyze the results from the study using two-tailed T-tests and a two-tailed ANOVA. In order for the data to be considered statistically significant, a p-value of less than 0.05 was established. Figures and tables were created using Excel and Lucidchart and are provided in the following sections to illustrate the findings of the study.

Participants

There were a total of 36 participants in the study. In order to qualify, participants were required to have seen a medical provider in the last 12 months and use at least one form of complementary and alternative medicine within the last 12 months (Figure 1). Of the 36 participants surveyed, 5 were disqualified because they had not met the first criteria: having seen a medical provider in the past 12 months (Figure 1). Every one of the remaining 31 participants met the second criteria: having used CAM in the past 12 months (Figure 1). Of the 31 participants who qualified for the study, 25 disclosed their CAM use to their medical provider, and the remaining 6 participants did not disclose their CAM use to their medical provider (Figure 1).

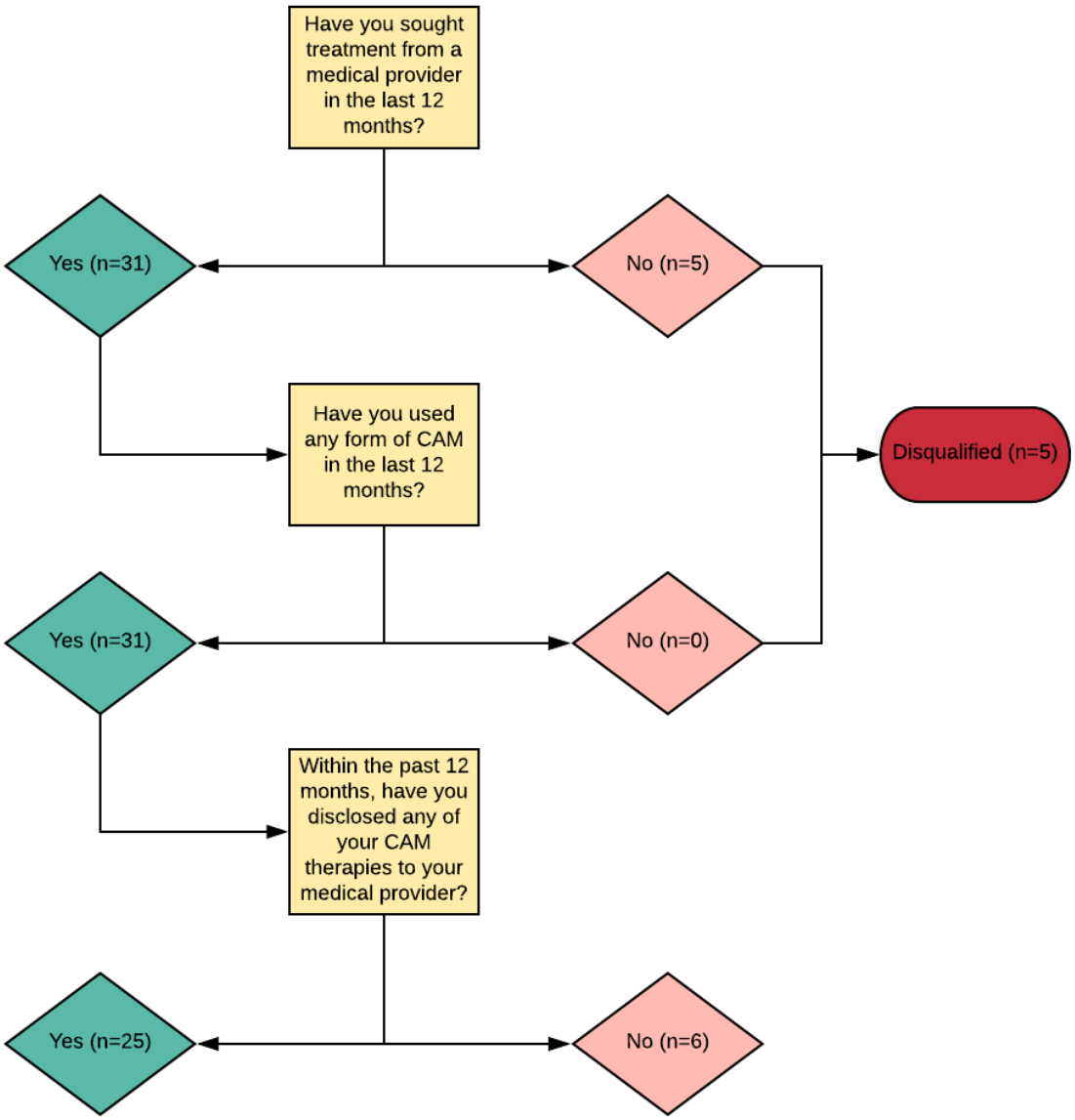

Figure 1. Survey Outcomes During the Two-Week Study Period

Figure 1 illustrates the number of total participants who qualified for the survey (n=31) and those who were disqualified for not seeking treatment from a medical provider in the previous 12 months as well as used a form of CAM within the past 12 months (n=5).

Demographics

Demographics of survey respondents were collected regarding sex, age, and ethnicity. Predetermined categories were available for selection. Sex included male, female, and other. Age

was grouped into ages 18-25, 26-40, 41-59, and >60, with individuals under 18 disqualified from participating. Each age group was then given a numerical value of 1, 2, 3, and 4, respectively to determine the mean age range. Ethnicity options were White, African American, Hispanic, Asian, and other. The preceding demographics were then grouped into "Yes" and "No" respondents based on their CAM disclosure to their medical provider. All 31 participants were asked, "Within the past 12 months, have you disclosed any of your CAM therapies to your medical provider?" Both male and female participants had a higher rate of CAM disclosure compared to non-disclosure of CAM, at 83.33% and 80.00% respectively (Table 1). The average age of "Yes" respondents fell into the 41-59 age bracket, while the average age of "No" respondents was in the 26-40 age group (Table 1). All valid participants in the survey selected "white" for ethnicity.

Table 1

Demographics of Survey Participants

Demographic	CAM Disclosure	Non-disclosure	Total Participants (n)
Sex			
Male	83.33%	16.67%	6
Female	80.00%	20.00%	25
Age[a]			
Numerical Mean	3.2 ± 1.00	2.0 ± 0.63	2.97 ± 1.05
Age Group Mean	41-59	26-40	41-59
Ethnicity[b]			
White	81%	19%	31
Other	0%	0%	0

Note. All individuals who had qualified for and completed the survey were included in the demographics.

[a]Participants were given the opportunity to select between age groups of 18-25, 26-40, 41-59, and >60. Each group was then given a numerical value of 1, 2, 3, and 4, respectively, and then numerical means were determined for disclosure versus non-disclosure. The numerical means were then given their closet corresponding age group.

[b]Selection of ethnicity on the survey was divided into White, African American, Hispanic, Asian, and other. All 31 respondents were white.

Participants of the survey were allowed to select the type of provider they have sought out within the past 12 months, with options of MD/DO, PA, and NP. Each survey taker was not limited to one answer, hence why totals for each category exceed the number of participants. Those that saw nurse practitioners had a disclosure rate of 100%, followed by physician assistants at 87.50%. Medical doctors and doctor of osteopathic medicine had the lowest disclosure rate at 77.78%.

Table 2

Type of Provider and Patient Disclosure Rates of CAM

Type of Provider	CAM Disclosure	Non-disclosure	Total Participants (n)
MD/DO	77.78%	22.22%	27
PA	87.50%	12.50%	8
NP	100%	0%	7

Note. Participants in the survey were allowed to select their current provider from pre-determined categories of MD/DO, PA, and NP. Multiple selections were allowed, thus accounting for the increased totals.

Participants were asked about their CAM use with an open-ended question and were given the option to write in their individual type of CAM. This question was asked to ensure participants understood what was referred to as "CAM". No participants were disqualified for their answers, as all of them used at least one form of CAM.

The most common form of CAM used by participants was vitamins (n=21), followed by herbs (n=18), minerals (n=16), and probiotics (n=15). Other less common forms of CAM used by participants include homeopathy (n=12), traditional medicine (n=4), massage (n=4), chiropractor (n=4), functional medicine (n=3), naturopathy (n=2), plant-based medicine (n=1), collagen (n=1), acupuncture (n=1), essential oils (n=1), fish oil (n=1), coQ10 (n=1), and traditional healers (n=1). Many participants reported the use of multiple forms of CAM. Twenty-

five of the 31 participants who qualified reported using more than one form of CAM simultaneously (Figure 2).

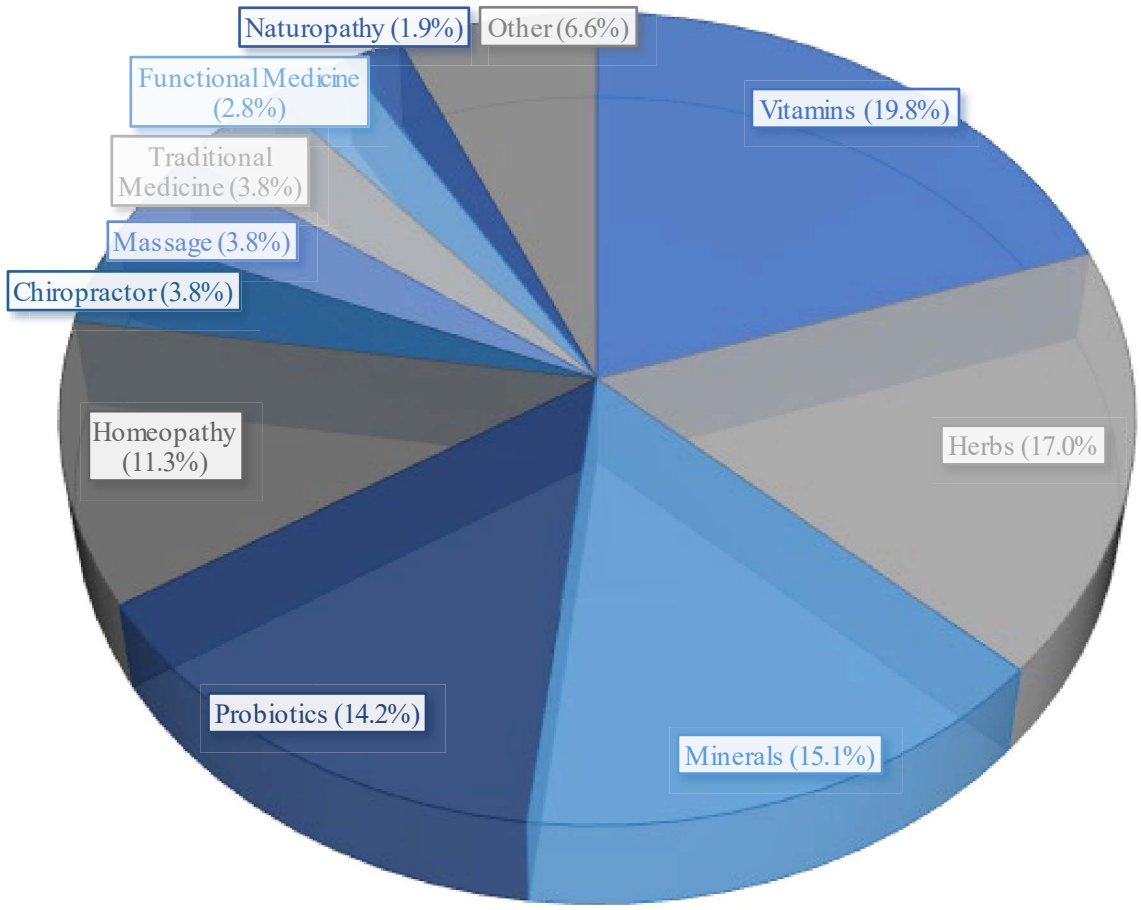

Figure 2. Types of CAM Used by Participants Within the Past 12 Months

Respondents were asked in the form of an open-ended question to list the type of CAM they use. Figure 2 represents the percentage of participants that utilized each individual type of CAM. The category "other" includes plant-based, collagen, acupuncture, essential oils, fish oil, and CoQ10.

Data Analysis

Participants were asked to rate their provider's attributes on a Likert scale of 1 to 5, with 1 as completely disagree and 5 as completely agree. These attributes included: a provider's

medical knowledge, communication skills, medical decision-making (MDM) process, empathy, and time spent during a visit.

A total of 31 participants were qualified to answer. Of the qualified participants, 29 of the 31 answered the provider attribute questions. Of these 29 participants, 24 disclosed their CAM use to their provider and 5 did not disclose their use. The mean scores were narrow between all provider attribute categories, ranging from only 4.0 to 4.6. The means and standard deviations of each group were then used in two-tailed t-tests to determine if there was a statistical difference between responses. The analysis revealed no significant difference between disclosure and non-disclosure of CAM use for any of the provider attributes. Table 3 shows the p-values between disclosure and non-disclosure rates based on provider attributes, and Figure 3 illustrates means and standard deviations for each provider attribute between disclosure and non-disclosure.

Table 3

Provider Attributes and Patient Disclosure Rates of CAM

Provider Attributes	CAM Disclosure (M ± SD)	Non-disclosure (M ± SD)	p-value
Medical Knowledge	4.0 ± 1.4 (n = 24)	4.2 ± 1.7 (n = 5)	0.76
Communication Skills	4.3 ± 0.8 (n = 24)	4.6 ± 0.3 (n = 5)	0.34
Medical Decision-Making	4.2 ± 1.4 (n = 24)	4.6 ± 0.8 (n = 5)	0.43
Empathy	4.0 ± 1.4 (n = 24)	4.4 ± 0.8 (n = 5)	0.47
Time Spent with Patient	4.1 ± 1.4 (n = 24)	4.4 ± 0.3 (n = 5)	0.44

Note. Five-point Likert scale responses were averaged for each provider attribute, and means with standard deviations were calculated for "CAM Disclosure" versus "Non-disclosure." P-values were included comparing the two disclosure participant groups for each provider attributes.

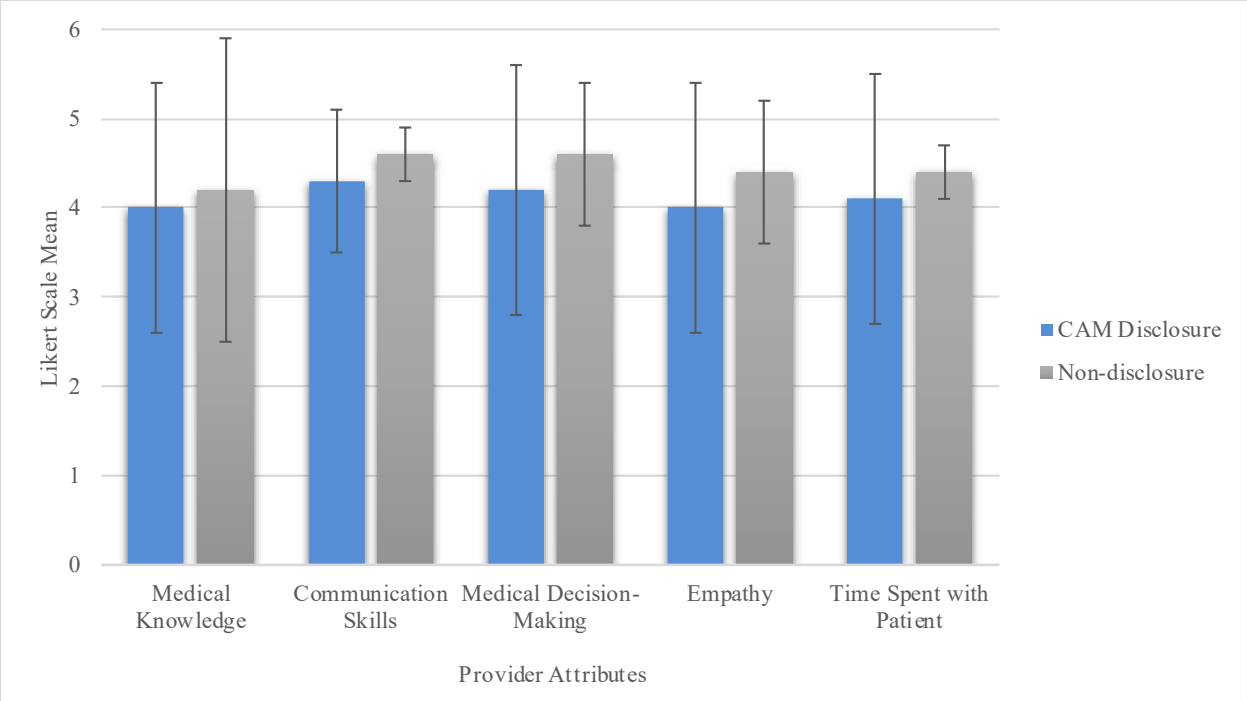

Figure 3. Provider Attributes versus CAM Disclosure Rates

Participants were then asked to rate their relationship with their provider via a Likert scale of 1 to 5, with 1 as completely disagree and 5 as completely agree. This patient-provider relationship was assessed by analyzing a rating of patient trust and satisfaction with his or her provider.

A total of 31 participants were qualified to answer. Of these 31 participants, 25 disclosed their CAM use to their provider and 6 did not disclose their use. Twenty-four of the disclosure participants replied to the statement about provider trust, and all 25 replied to the statement rating their satisfaction with their medical provider. Five of the non-disclosure participants replied to the statement rating their trust in their provider, and four replied to the statement rating satisfaction in their provider.

Both groups of participants that disclosed CAM use and those that did not, averaged a high Likert scale, indicating both groups felt trust and satisfaction in their provider. The means and standard deviations of each group were then used in two-tailed t-tests to determine if there

was a statistical difference between responses. The analysis showed that there was no significant difference between disclosure and non-disclosure of CAM use for either provider trust or patient satisfaction. Table 4 shows the p-values between disclosure and non-disclosure rates based on provider trust and patient satisfaction, and Figure 4 illustrates means and standard deviations for provider trust and patient satisfaction between disclosure and non-disclosure.

Table 4

Patients' Relationship with Providers and Patient Disclosure Rates of CAM

Patient-Provider Relationship	CAM Disclosure (M ± SD)	Non-disclosure (M ± SD)	p-value
Patient Trust in Provider	4.0 ± 1.6 (n = 24)	4.2 ± 0.7 (n = 5)	0.61
Patient Satisfaction	3.8 ± 1.7 (n = 25)	4.3 ± 0.9 (n = 4)	0.49

Note. Five-point Likert scale responses were averaged for patient trust and satisfaction, and means with standard deviations were calculated for "CAM Disclosure" versus "Non-disclosure." P-values were included comparing the two disclosure participant groups for both patient-provider relationship characteristics.

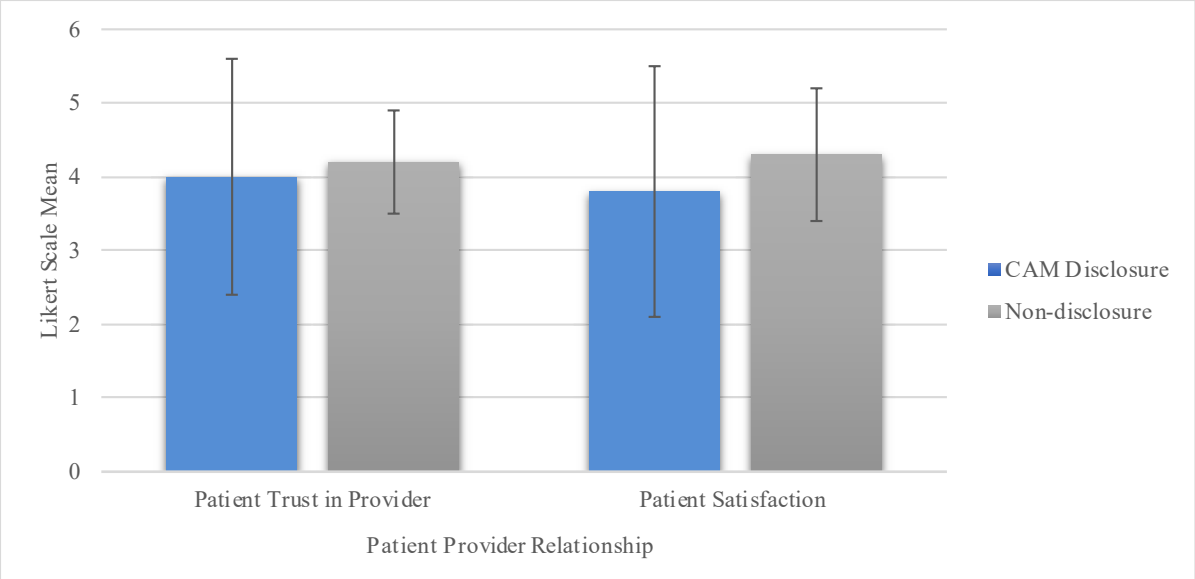

Figure 4. Patients' Relationship with Providers versus CAM Disclosure Rates

The six participants that stated they did not disclose their CAM use to their medical provider were asked to rate how well they agreed with three different possible reasons they did not disclose. These reasons were the following: because the participants wanted to avoid a

negative response from their medical provider, their medical provider did not ask, or because they did not believe the use of CAM was important for their provider to know. Participants were asked to rate each statement on a Likert scale from 1 (completely disagree) to 5 (completely agree).

Table 5 includes the mean score and standard deviation for each response; only five of the six qualifying participants answered these questions on the survey. In addressing the statement concerning a negative response, participants were variable across the Likert scale with a mean of 3.6 and a high standard deviation of 2.3. The participants mostly agreed with the statement that the provider did not ask with a mean of 4.2 and a tighter standard deviation of 0.7. Finally, participants disagreed with the statement that they did not think disclosure was important with a mean value of 1.8 and a standard deviation of 1.2 (Table 5). The comparisons of each mean with standard deviation can be seen in Figure 5.

The means and standard deviations were then used in a two-tailed ANOVA to see if there were statistical differences between the responses. Because the ANOVA determined a significant difference at $P<0.05$ [$F(2,12) = 5.57$, $P = 0.019$], post hoc analysis was completed using two-tailed t-tests comparing each group. A statistical difference does exist between the statements "provider did not ask" compared to "patient did not think important" (Table 5). Participants strongly agreed with the statement "providers did not ask," and they strongly disagreed with the statement that participants did not disclose CAM because they "did not think CAM use was important". Participants had a wide variation in responses agreeing and disagreeing with the statement "avoiding a negative response" from their provider.

Table 5

Comparisons of Patients' Reasons for Non-Disclosure of CAM

Patient's Reasons for Non-Disclosure of CAM	Total (n)	Mean	SD	T-test Comparisons (p-values) Fear of Negative Provider Response	Provider Did Not Ask
Fear of Negative Provider Response	5	3.6	2.3		
Provider Did Not Ask	5	4.2	0.7	0.47	
Patient Did Not Think Important to Disclose	5	1.8	1.2	0.19	0.02

Note. The three patient' reasons for Non-Disclosure of CAM were individually compared using two-tailed t-tests after obtaining a statistically significant two-tailed ANOVA of the three reasons using $p<0.05$ [$F(2,12) = 5.57$, $P = 0.019$].

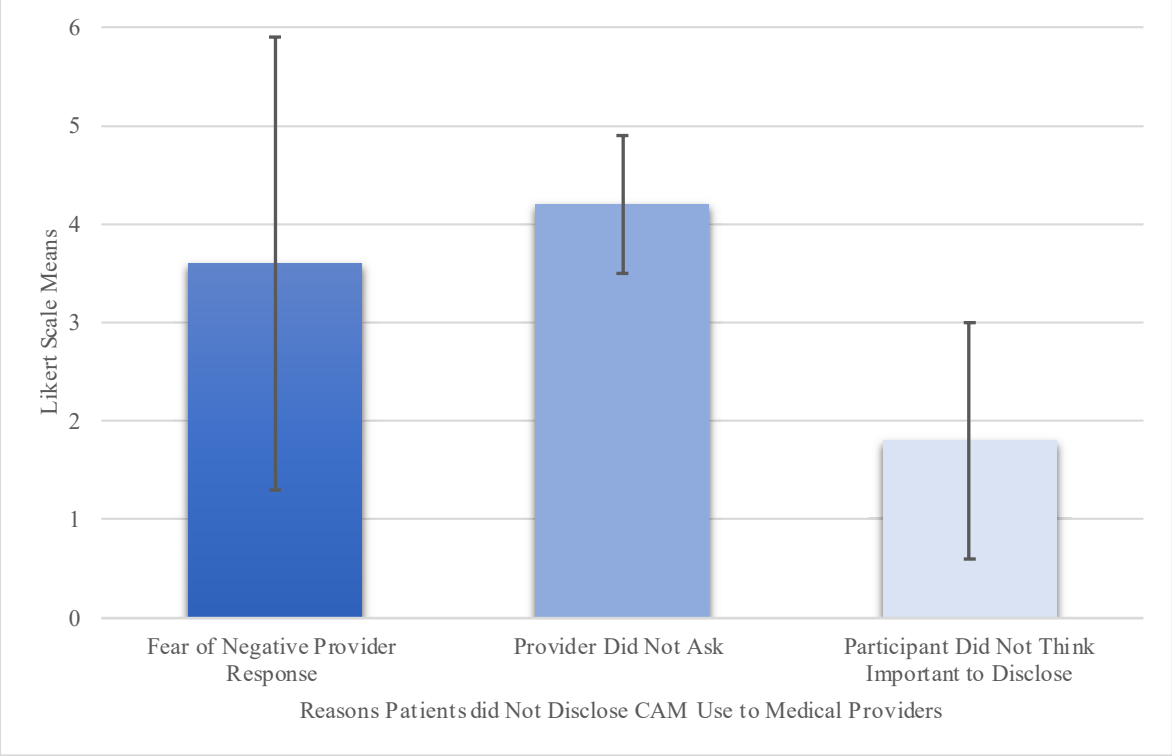

Figure 5. Participants' Reasons for Non-Disclosure

Conclusion

Participant disclosure of CAM use did not have a statistically significant correlation with any of the five provider attributes (medical knowledge p=0.76, communication skills p=0.34,

medical decision-making p=0.43, empathy p=0.47, and time spent with patient p=0.44). Participant disclosure of CAM did not have a statistically significant relationship with provider trust (p=0.61) or patient satisfaction (p=0.49). The participants who did not disclose their CAM use to their medical providers were also asked to rate how well they agreed with the three statements indicating possible reasons why. The only significant relationship was between the statements "patient did not think CAM disclosure was important" versus "the provider did not ask" (P = 0.02). This statistical difference exists because participants mostly agree with the statement "provider did not ask" (Mean = 4.2) and disagree with the statement "the patient did not think CAM disclosure was important (Mean = 1.8). The final chapter thoroughly discusses the data, assesses the limitations of the study, and explores how any significant results obtained from the study can be used in practice.

Chapter 5: Discussion

Introduction

The final chapter of this paper will discuss a summary of the results, limitations, and further research about CAM disclosure and the patient-provider relationship. Specifically, researchers will relate findings discovered from the survey to current literature. Limiting factors, such as population size, homogeneous demographics, and subjective nature of the survey, will also be addressed. Lastly, researchers will explore options for continuing investigation in this field.

Summary of Results

The purpose of this current study was to determine if certain attributes or characteristics exhibited by providers led to a patient's disclosure of their CAM use. Previous research has shown that patients value providers who appear open, nonjudgmental, and empathetic (Anderson et al., 2007). This current study agrees with the previous research as all patients highly valued the following characteristics in their medical provider: a provider's expanse of medical knowledge, proficient communication skills, being incorporated into the medical decision-making process, empathy, and amount of time spent during the visit. However, no statistically significant difference exists between disclosure and non-disclosure groups for any of the preceding provider attributes listed.

Additionally, this current study sought to expose a possible correlation between CAM disclosure and a positive patient-provider relationship. Bauer et al. determined that a perceived lack of shared decision-making or low trust of the provider led to harmful health effects, especially with regard to medication compliance (2014). A number of other previous studies have also shown that strong patient-centered communication results in less patient use of CAM

as well as a higher disclosure rate of CAM. In this current study, a "positive" patient-provider relationship was determined by utilizing trust and satisfaction as the core qualities assessed on a Likert scale. The majority of patients surveyed exhibited high Likert scale ratings, and thus, seemed to have had a "positive" relationship with their medical providers, regardless if the provider is an MD/DO, PA, or NP. This finding was apparent across both disclosure and non-disclosure groups. Therefore, a provider's relationship with their patient did not appear to increase the likelihood for one to open up regarding one's CAM use.

Jou and Johnson (2016) found that nearly half of CAM users did not disclose their use to their medical providers. Similarly, researchers in this current small study found that 25 of 31 (81%) participants disclosed CAM use to their medical provider. Chae et al. (2008) discussed that Caucasians and women are more likely to disclose CAM use than other ethnicities and genders. This current study also found that participants were 100% Caucasian and 81% female, which may be a contributing factor to the high disclosure rate.

Robinson and McGrail (2004) reviewed 12 different studies and determined that the most common reasons for not disclosing CAM use were fear of negative responses from their provider, patients did not believe their provider needed to know, and that the provider did not ask or seemed disinterested. Based on participant feedback within this current study, patients found CAM disclosure to be an important component of patient-provider discourse, as many strongly disagreed with the assumption that CAM use was unimportant. Moreover, the most agreed upon statement for a reason of non-disclosure was that providers did not ask patients about their CAM use. The results from this study suggest that the best way to encourage disclosure of CAM use is to simply ask the patient directly about CAM. As many CAM therapies can interfere with conventional medications, providers need to be aware of what therapies their patients may be

using. Some providers may want to blame the patient for not disclosing certain important information. However, providers must realize that patients might not disclose this information simply because the provider did not ask about CAM. Although most research suggests that there are many factors that contribute to patient disclosure of CAM, asking a patient directly appears to be one of the most significant factors. This question is simple to incorporate into the patient interview, or even in a written questionnaire before the patient sees the provider.

A previous study has shown that a large number of adults in the United States, approximately 38%, use at least some form of CAM (Barnes et al., 2008). Researchers conducted this current study in a natural food health store, where 100% of participants used at least one form of CAM. This result was expected as researchers strived to locate a population that would meet the inclusion criteria for the survey.

The most common forms of CAM according to Barnes et al. were nonvitamin, nonmineral, natural products (18%), deep breathing exercises (13%), chiropractic care (9%), massage (8%), and yoga (6%) (2008). The findings of this current study were relatively consistent with previous findings. Of the qualifying participants, the most common forms of CAM used were vitamins (20%), herbs (17%), minerals (15%), probiotics (14%), chiropractor (4%) and massage (4%).

Limitations

The most significant limiting factor in the research is the population size. Of the 36 responses, only 31 qualified for the study, and of those that qualified, the majority had disclosed their CAM use to their provider (25 participants said “yes” versus the 5 that said “no” disclosure). Because of the small population size, researchers were unlikely to find any statistically significant differences, even if differences exist. For example, the mean scores for

CAM disclosure were higher than non-disclosure when comparing all medical provider attributes. However, the small population size for each group created difficulty in finding a P value less than 0.05.

Another limitation of this study is the homogenous demographics of the participants. One-hundred percent of the population is of white ethnicity, and 80.6% are female. Overall, the participants are representative of a small group of customers from LifePreserver located in Brainerd, Minnesota. The statistics cannot be extrapolated to other populations as not every CAM user shops at LifePreserver.

The survey is also limited by participants' honesty and willingness to complete the survey. The surveys are only valid if participants take time to fully think about each question. Because the surveys were handed out at the cashier desk of LifePresrver, the participants could have hastily answered questions and not give their most truthful response. In addition, multiple participants did not complete their surveys fully and some completed sections of surveys they did not qualify for. Only those that did *not* disclose CAM use to their provider were asked to rate statements indicating possible reasons why; one person who did qualify did not answer. Finally, two of the 31 qualified participants did not answer the last two questions, rating their medical provider's attributes and trust and satisfaction in their medical provider.

Further Research

Continuing this research would greatly benefit from a larger sample size. Larger sample size could be accomplished by submitting surveys across multiple locations with possible CAM users and for a longer duration of sample collection. Sites could include multiple whole foods and supplement stores similar to LifePreserver, as well as medical clinics were participants routinely seek treatment from physicians, physician assistants, and nurse practitioners. Multiple

locations would also increase population diversity as more urban and rural locations could be included. Researchers could also expand the diversity of the population by including surveys in multiple written languages. Many CAM users are from diverse ethnic backgrounds and are excluded from the study because all participants identified as white. Possible statistical significance could be specific to certain ethnic backgrounds that are missed in this study.

Future research could also expand on understanding CAM disclosure from the perspective of the medical provider. Physicians, physician assistants, and nurse practitioners could be surveyed about their relationship with their patient and how this relationship affected CAM disclosure. This insight could lead to understanding disclosure factors so that the patient-provider relationship can be improved upon from the provider's perspective.

Another useful relationship that could be further developed is the type of provider versus disclosure rates. In this study, nurse practitioners had 100% disclosure rate while physician assistants and physicians had lower disclosure rates (Table 2). Although this correlation was not statistically analyzed, a possible trend could exist between different types of providers resulting in different provider-patient relationships.

Finally, researchers could create surveys that focus on specific types of CAM versus CAM disclosure. The survey in this study could be problematic as CAM is extremely broad and includes countless varieties. The survey could focus on a specific type of CAM, such as chiropractic care, and determine individual disclosure rates and the patient-provider relationship. A focused approach on each type of CAM could give a more detailed insight about compliance with CAM disclosure.

Conclusion

The purpose of this study was to determine if a relationship exists between patients' disclosure of their complementary and alternative medicine versus the patients' relationship with their medical providers. The patient-provider relationship was determined by evaluating provider attributes, how well the patient trusted his or her provider, and how satisfied the patient was with his or her provider. The results of this study indicated no statistical significance existed between disclosure and non-disclosure of CAM use versus patient-provider relationships. Participants who did not disclose their CAM use to their medical provider mostly agreed with the statement that the reason for non-disclosure was because their medical provider did not ask. Participants disagreed with the statement that the reason for non-disclosure was because the participants did not think CAM use was important. Further research could determine what affects CAM disclosure by expanding the quantity and diversity of the research population, thus decreasing limitations. Overall, this study aims to encourage better conversations between patients and their providers, ultimately creating maximal health outcomes for patients; by integrating CAM therapy into health care, providers will be able to create fulfilling relationships with their patients.

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APPENDIX A: QUESTIONNAIRE

Please circle your answers to the following questions.

1. Sex:

   Male **Female** **Other**

2. Age:

   18-25 **26-40** **41-59** **Over 60**

3. Race/Ethnicity:

   White **African American** **Hispanic** **Asian** **Other**

4. Have you sought treatment from a medical provider in the last 12 months?

   Medical provider: medically trained and licensed personnel in medicine including physicians, physician assistants, and nurse practitioners.

   Yes **No**

If you answer "No" to question 4, you do not qualify for the survey. Please circle "No" and then place the survey into the envelope. Thank you for your time.

5. What type of medical provider do you see for medical care?

   Physician: MD or DO **Physician Assistant** **Nurse Practitioner**

6. Have you used any form of complementary and alternative medicine (CAM) or therapy in the last 12 months?

   Complementary and alternative medicine (CAM): vitamins, minerals, herbs, probiotics, mind-body therapies, traditional healers, ayurvedic medicine, traditional medicine, homeopathy, and naturopathy.

   Yes, please list CAM use _____

   No

If you answer "No" to question 6, you do not qualify for the survey. Please circle "No" and then place the survey into the envelope. Thank you for your time.

7. Within the past 12 months, have you disclosed any of your CAM therapies to your medical provider?

   Yes **No**

If you answer "No" to this question, please continue to question 8. If you answer "Yes", please continue to question 9.

8. Please indicate the extent to which you agree with the following statements about your medical provider:

   I do not disclose my CAM use because I want to avoid a negative response from my provider.

   (completely disagree) 1 2 3 4 5 (completely agree)

   I do not disclose my CAM use because my provider did not ask about complementary and alternative medicine use.

   (completely disagree) 1 2 3 4 5 (completely agree)

   I do not disclose my CAM use because I believe complementary and alternative medicine use is not important for my provider to know.

   (completely disagree) 1 2 3 4 5 (completely agree)

9. Please indicate the extent to which you agree with the following statements about your medical provider:

   My provider has a strong grasp of medical knowledge.

   (completely disagree) 1 2 3 4 5 (completely agree)

   My provider has strong communication skills.

   (completely disagree) 1 2 3 4 5 (completely agree)

   My provider includes me in the medical decision-making process.

   (completely disagree) 1 2 3 4 5 (completely agree)

   My provider demonstrates empathy with me.

   (completely disagree) 1 2 3 4 5 (completely agree)

   My provider spends an adequate amount of time with me.

   (completely disagree) 1 2 3 4 5 (completely agree)

   I trust my provider.

   (completely disagree) 1 2 3 4 5 (completely agree)

10. Overall, how satisfied are you with your medical provider?

    (completely unsatisfied) 1 2 3 4 5 (completely satisfied)

APPENDIX B: INFORMED CONSENT FORM

Dear LifePreserver Natural Foods customer:

We are students from Bethel University conducting research as partial fulfillment of the requirements for a Master's Degree in Physician Assistant Studies. The purpose of this research study is to further understand the relationship between the patient and their provider by assessing which attributes and characteristics a provider exhibit that may facilitate a patient's willingness to disclose the use of Complementary and Alternative Medicine (CAM). The information this study gathers will allow medical providers to better serve their patients by learning how to communicate with patients about CAM.

You were selected as a possible participant in this study because you are a customer of LifePreserver Natural Foods, a store that celebrates the use of CAM. Participation in the survey is completely voluntary. If you decide to take part in our research, your involvement includes answering a questionnaire created by researchers from Bethel University's PA program. The survey will take approximately 5-10 minutes. Most participants will find the discussion interesting and thought-provoking. Any information obtained in connection with this study is confidential and will not be linked to the participants.

This research project has been reviewed and approved in accordance with Bethel University's Levels of Review for Research with Humans. If you have any questions about the research and/or research participants' rights or wish to report a research-related injury, please call Thomas Stearns at 714-222-7207, Kathryn Ortmann at 715-933-0397, Norsha Scheil at 715-418-5259, or Professor Cynthia Goetz, PA-C, at 651-638-6747. You will be offered a copy of this form to keep.

We understand that you have a busy schedule and your time is limited. Please realize that your participation is vital to the success of this research. The information that you provide is essential to the validity of this study. Thank you in advance for your participation in this study.

Your consent is implied by the return of the completed questionnaire. You may obtain a copy of this cover letter upon request. You are making a decision whether or not to participate. You may

withdraw at any time without prejudice should you choose to discontinue participation in this study.

Sincerely,
Thomas Stearns, Kathryn Ortmann, and Norsha Scheil

APPENDIX C: BETHEL UNIVERSITY IRB APPROVAL

Level III IRB Approval - Bethel University Inbox ×

Wallace Boeve <w-boeve@bethel.edu> Fri, May 18, 2018, 6:39 AM
to me, Thomas, Norsha, Peter, Lisa, Cindy

May 17, 2018

Katie, Norsha, & Thomas;

As granted by the Bethel University Human Subjects committee as the program director, I write this letter to you in approval of Level 3 Bethel IRB of your project entitled: "Patient Disclosure of Complementary and Alternative Medicine and the Patient-provider Relationship." This approval is good for one year from today's date. You may proceed with data collection and analysis. Please let me know if you have any questions.

Sincerely;

Wallace Boeve, EdD, PA-C
Program Director
Physician Assistant Program
Bethel University
w-boeve@bethel.edu
651 308-1398 cell
651 635-1013 office
651 635-8039 fax
http://gs.bethel.edu/academics/masters/physician-assistant

CC: Bethel IRB Chair - Peter Jankowski
Faculty Chair Advisor - Cindy Goetz
PA Program Research Coordinator - Lisa Naser

APPENDIX D: POPULATION SITE APPROVAL

--- Original message ---
Subject: Survey
From: Thomas Stearns <tjs34846@bethel.edu>
To: <lpnf@brainerd.net>
Date: Tuesday, 20/02/2018 7:34 PM

Hello Larry and Kandy,

I hope you are doing well and are enjoying your vacation. You picked a good time to leave MN!

I was talking with Angie and she said that you would allow me to put surveys out at the store for customers to complete. I really appreciate you letting me do this!

I wanted to let you know a little more about the survey. For PA school, Bethel University has us do a research project that takes the full two years of the program. Me and two other classmates decided to research complementary and alternative medicine (CAM). We want to discover if there are certain attributes and characteristics in a Western medical provider that may facilitate a patient's willingness to disclose their CAM use. We are hoping that this research will allow Western medical providers to better serve their patients by learning how to communicate with patients about CAM and encourage CAM disclosure.

We are hoping to have your customers fill out an anonymous paper survey which they will complete in-store or bring back at a later date. Once they complete it, we want to have them place it in a locked box so that their information is protected. After a certain period of time (maybe a couple of weeks?), I will pick up the surveys and we will begin analyzing the results. We hope to begin surveying people within the next couple of months.

Please let me know if you see any issues that may arise from this or if you would like us to approach the survey process a different way. Let me know if you have any questions.

In order to survey customers at your store, Bethel wants us to get permission from you. At your convenience, will you please send me an email that states that you are fine with us putting surveys out at LifePreserver?

Thanks again!

Tom Stearns
714.222.7207
tjs34846@bethel.edu

--- Original message ---
Subject: Re: Fwd: Survey from Tom Stearns
From: Larry Leege <larkan8@yahoo.com>
To: Lifepreserver Natural Foods <lpnf@brainerd.net>
Date: Thursday, 22/02/2018 11:12 PM

Tom: Good to hear from you. We received your email dated 2/22/2018 concerning your CAM research project. It sounds like a very good idea and we are completely in favor of you utilizing LifePreserver Natural Foods' customers to assist you in this research project. If anything else is needed from us, let us know. Larry & Kandy Leege, owners

On Thursday, February 22, 2018 02:36:15 PM CST, Lifepreserver Natural Foods <lpnf@brainerd.net> wrote: