

Understanding the Impact of Biological Medicine – a Descriptive Patient Study

POL 585 Applied Policy Research Seminar

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I. Introduction: Complementary and alternative medicine (CAM) is an important field of care delivery in the U.S. today. CAM is "...defined by the National Center for Complementary and Alternative Medicine [later called National Center for Complementary and Integrative Health] as a group of diverse medical and healthcare systems, practices, and products that are not presently considered to be part of conventional medicine." (Tindle 2005, Ventola, 2010). Not only has the use of CAM been increasing but so too has the amount of dollars spent on it (See Barnes 2008, Barrette 2012, Clarke 2015, Eisenberg 1993, 1998, 2001, Ernst 1998, Kessler 2001, Tindle 2005). Moreover, patients often self-refer and may or may not inform their traditional medical physician about their use of CAM services which may create care conflicts with potential adverse effects. (Astin 1998, Eisenberg 2001, Featherstone 2003, Mildren 2004). Additionally while it can be assumed that unconventional medicine is primarily used in life-threatening or with debilitating illness, research has not shown this to be exclusively true; other predictors such as lifestyle and philosophy are just as or perhaps even more significant in the decision to use CAM.

Concurrent with these findings, academic medical centers and medical schools have been increasingly integrating aspects of CAM into both their clinical programs, their teaching curriculum and fellowship programs. Horrigan 2012 reports that the Consortium of Academic Health Centers for Integrative Medicine has grown from 4 to 50 member medical schools. Moreover, the Academic Consortium for Complementary and Alternative Health Care (ACCAHC) actively participated in the NCCAM's strategic planning (See Josefek 2000, Maizes 2002, Menard 2015, Ring 2014, Wetzel 1998). Likewise the National Institutes of Health's National Center for Complementary and Integrative Health (NCCIH), (formerly NCCAM) has markedly increased its funding to include substantial research dollars in support of the use and effectiveness of various modes of complementary and alternative medicine from \$3.5M in FY 2000 to \$88.4M in FY 2012 (Barrette, 2012).

Uncoordinated use of CAM in conjunction with traditional medicine can sometimes produce negative consequences and are often either unmonitored, unknown, or unregulated by providers of either traditional or

alternative medicine (Ventola, 2010). Regulation of and legislation concerning licensure of unconventional practitioners and treatments are either lacking or inconsistent from state to state raising the potential for patient safety and efficacy concerns which are further exacerbated by little formal oversight or policing of many CAM practices (Josefek 2000). Moreover with so many patients choosing CAM, it is likely that the modalities are making a difference in some patients' care. Which modalities and treatments are successful must be better understood and communicated and brought into the mainstream of medicine. Thus the extent of patient expenditures for care outside of the mainstream health care system coupled with patient demand for CAM and the patient safety and efficacy concerns occurring with uncoordinated alternative and traditional medical care are sufficiently substantial, to suggest a disconnect between our currently provided health care system and one that incorporates alternative medicine. Moreover, our current system (both private and public funding sources) is not providing health insurance for this highly prevalent mode of health care (CAM) that a substantial portion of the public is interested in and spends time and money on. The limitation is that our traditional U.S. governmental, medical and insurance methods do not provide oversight, regulation, and service provision for this mode of care that is used and desired by a substantial portion of Americans. The policy questions raised include: a) Is U.S. health policy focused in all critical areas of care being sought by patients? b) Are U.S. governmental health care dollars in patient care delivery, medical education, and research being optimally invested to cover all key patient safety and efficacy areas? and c) Is there enough research, oversight, and education provided to understand how alternative and conventional medicine interact together, to ensure that for example, drug-herb interactions (or other potentially toxic interactions) can be understood and avoided through research and education? The research concerning CAM use has shown that there has been a historic disconnect between patient spending, interest and use of CAM and governmental spending, interest and focus on CAM (See Clarke 2015, Eisenberg 1993, 1998, 2001, Kessler, 2001, Menard 2015). In sum, research that informs CAM practice and understanding is important to public policy because:

- at least 40% of Americans use some form of CAM,
- at least 40% are spending huge sums of money for CAM exceeding \$30B,
- patients use both CAM and traditional medicine simultaneously which can result in adverse effects if uncoordinated,

- some modalities of CAM could be more successful in treating certain types of illnesses and/or promoting wellness than traditional medicine (e.g., meditation for stress relief over pharmaceuticals or acupuncture over pharmaceuticals for headache treatments).

While there have been random national studies of usage and prediction of use, there have been fewer studies of specific patient cohorts from an alternative medicine practice that have received alternative medicine and reported on patient decision making, satisfaction with care, and outcome assessment post treatment (See Ades 2006, Palinkas 2000). Even fewer studies have been done on the subset of CAM known as biological medicine (Ades 2006). This study seeks to study a patient cohort that has received CAM to understand the profile of patients, decision-making, satisfaction, and self-assessment of care delivery.

One model of alternative medicine care is known as biological medicine (BM). BM is a comprehensive approach to health and well-being that combines noninvasive medical technology with the body's natural healing power. Thomas Rau, MD, expert on biological medicine and medical director of the Paracelsus Klinik, in Switzerland, describes it as a model of holistic medicine which combines traditional forms of holistic medicine (homeopathy, naturopathy, Chinese meridian, Ayurveda medicine (ancient medicine from India) with contemporary medical and technological practices (See Biological Medicine: the future of natural healing, 2011, <http://www.marioninstitute.org/biological-medicine-network>, 2016). The purpose of this research is to survey patients that have been referred to and received treatment in BM in order to understand, from the patients' point of view, the reasons for seeking biological medicine care and the satisfaction with and impact of treatments received. Descriptive statistics will be provided that describe both the profile and demographics of users as well as the services that this cohort of patients used, their satisfaction with the therapies and evaluation of their effectiveness. How and why these patients sought this care will be addressed as well as whether they perceive that they are better off since receiving the care. Little information exists in the literature about this field of BM as a whole approach to care. This study will begin to describe it and its patient population in greater detail, leading to more opportunities for study and research.

II. Previous Findings:

What is CAM? According to the NIH's National Center for Complementary and Integrative Health (NCCIH formerly NCCAM) CAM is described as "...healthcare approaches developed outside of mainstream Western or conventional medicine" (<https://nccih.nih.gov/health/integrative-health>). Furthermore, the NCCIH points out the distinction between "complementary" and "alternative:"

If a non-mainstream practice is used **together with** conventional medicine, it's considered "complementary."

If a non-mainstream practice is used **in place of** conventional medicine, it's considered "alternative."

CAM therapies can be classified into five unique categories (Ventola, Part 1, 2010):

- Alternative whole medical systems (homeopathic and naturopathic, Chinese, and Ayurveda medicine) (<https://nccih.nih.gov/health/homeopathy/Chinesemedicine/Ayurveda>):
 - Homeopathic medicine: a German medicine system originated in 1796 that uses the doctrines of like cures like and the law of minimum doses to cure and/or prevent illness
 - Chinese medicine: ancient Chinese medicine system that uses herbal medicine and various mind-body practices such as acupuncture, tai chi, qi gong, to treat and prevent illness.
 - Ayurveda medicine: an ancient medicine system originating in India that promote use of herbal compounds, special diets, exercise and other unique health practices.
- 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 or honeybee pollen).
- Manipulative and body-based methods (chiropractic and osteopathic manipulation, massage)
- Energy therapies (*qi gong*, Reiki, therapeutic touch, and electromagnetic field exposure)

Why study CAM? CAM is extremely important to U.S. health care policy for several reasons described below.

First, its prevalence of use has been increasing dramatically and this is driven primarily by patient demand.

Starting in the early 1990s and continuing today, numerous reports and studies have reported a trend of increasing use of various forms of CAM by patients. Starting with their landmark New England Journal of Medicine Special Article concerning a nationally representative survey study, Eisenberg et al looked at sixteen (16) CAM therapies and estimated that a significant percentage of the adult population (34%) in 1990 sought unconventional therapy and spent out of pocket on unconventional therapy an amount comparable to the amount spent out of pocket by Americans for all hospitalizations –between \$12 and \$13 billion (Eisenberg, 1993). **APPENDIX A** lists the 16 therapies defined as part of CAM. Additionally their projections showed that unconventional therapy was used by millions of patients and many reasons were not life threatening (Eisenberg 1993). Highest use was reported to be by nonblack, middle aged and higher income persons, for

chronic illnesses. Moreover, for those with serious illness, a majority used both traditional and unconventional medicine yet typically did not inform their doctor of their use of unconventional medicine (Eisenberg, 1993, 1998, 2001). As a result of Eisenberg's 1990 study, CAM as a mode of care delivery catapulted to the forefront of U.S. medicine and health policy concerns (Eisenberg, 1993).

Since this landmark study, other research has confirmed and expanded upon these results in the U.S. and abroad to show a trend of continued increases in usage of CAM with patient utilization reaching upwards of 42% of the population by 2010 and expenditures on CAM exceeding \$30 billion (See Astin 1998, Barnes, 2002, 2008, Eisenberg 1998, Harris 2000, Kessler 2001, Tindle 2005, Ventola, Parts 1, 2, 3, 2010). Dollar expenditures have also continued to rise -- \$21.2 billion in 1997 and up to \$33.9 billion out of pocket in 2007, according to the 2007 National Health Interview Survey (NHIS) conducted by the CDC (See Barnes 2002, 2008, Eisenberg 1998, Nahin 2009).

In addition to CAM prevalence studies, there have also been studies to investigate the predictors of CAM use (see Astin 1998, Eisenberg 2001, Thomson 2014). Astin's 1998 national random survey study in the *Journal of the American Medical Association (JAMA)* described the typical user of CAM therapies as female, more educated, poorer health status, and committed to CAM for a value or spiritual based rationale (Astin 1998). These findings are similar to Eisenberg's but are somewhat more expansive. In Ernst's systematic review article, he points out that the growing prevalence of the use of CAM poses significant questions to health care policy, namely, "Why do people turn towards CAM? Which forms of CAM are helpful for which conditions? What is the role of the placebo effect and the therapeutic relationship? What risks are associated with the use of CAM?" (Ernst 2000). He suggests the need for increased research concerning all aspects of CAM to help answer these and similar questions.

A second reason to study CAM is to help inform health care professionals and the medical industry about it. Since the increasing use of CAM therapies has been driven by patient demand and patients often omit telling

their conventional providers about their CAM use (Eisenberg 2001), traditional providers of care may remain uninformed. These knowledge and communication gaps must be addressed from a policy perspective to ensure the adequate provision of health care services (Ventola, Part 1, 2010.). A survey of patients is one important way of elucidating this information to inform providers. Measuring patient satisfaction is an important tool for understanding why CAM is important to patients. “Satisfaction ratings are intentionally more subjective, they attempt to capture a personal evaluation of care that cannot be known by observing care directly. Thus, a patient satisfaction rating is both a measure of care and a measure of the patient who provides the rating” (Ware 1983). Academic medical centers and U.S. medical schools have been increasingly incorporating elements of CAM into their care practices (See Horrigan 2012, and Ehrlich 2013), and medical school and fellowship curricula (See Menard 2015, Ring 2014, and Wetzel 1998) with the desire to improve patient care. Sometimes referred to as functional or integrative medicine, the approaches are meant to encourage both complementary and traditional medicine and in cases where superior, alternative modalities. The movement of academic medical centers and medical schools to begin incorporating CAM signals the importance of this policy area.

A third reason to study CAM is because it is being encouraged by the NIH with increased research grants. The NIH through the NCCIH provides over \$124.4 million in research funding. In its strategic plan (2011-2015), the following goals have been set forth and are underway (see <https://nccih.nih.gov/about/researchfocus>):

- Strategic Objective 1 Advance Research on Mind and Body Interventions, Practices, and Disciplines
- Strategic Objective 2 Advance Research on CAM Natural Products
- Strategic Objective 3 Increase Understanding of “Real-World” Patterns and Outcomes of CAM Use and Its Integration Into Health Care and Health Promotion
- Strategic Objective 4 Improve the Capacity of the Field To Carry Out Rigorous Research
- Strategic Objective 5 Develop and Disseminate Objective, Evidence-Based Information on CAM Interventions

Both CAM providers and traditional providers have become more interested in research about CAM therapies and their efficacy. Barnes’ investigation of Medline research studies from 1966 through 1996 showed a progressive increase in research articles about CAM subjects in Medline database (Barnes 1999). Although the sheer number is low, particularly with regard to evidence based studies, the trend does show much greater

interest in both qualitative and evidence based studies (Barnes 1999). Europe has a similar process underway with its research roadmap for CAM designed to enhance evidenced based studies to inform the practice of health care by 2020 (Fischer 2012, 2014). These research efforts will help to create integration with conventional medicine and develop methods for doing so and ensuring efficacy and safety for patients and providers.

In sum, the federal government has set a policy agenda to educate, inform, survey, study, and incorporate best practices with regard to CAM. This policy agenda is a compelling reason to undertake research, qualitative or quantitative, in the CAM field.

What is biological medicine and why study it? The non-profit Marion Institute in Marion, Massachusetts serves as an incubator for a variety of programs that seek to understand the root causes of issues (<http://www.marioninstitute.org/about-us>, 2016). Within this context, the founders of the Marion Institute created the Biological Medicine Network (BMN) in 1997 with the purpose of providing education and access to biological medicine to all interested. They created the BMN after searching for a medical modality to help improve their son's lung capacity which had been reduced to 50% after extensive treatment of leukemia. After researching and learning about biological medicine and receiving care for their son in a biological medicine program (Paracelsus Klinik, Switzerland) they decided to initiate the BMN. The BMN has provided information to patients, educational conferences for U.S. physicians and providers, and referrals to BM practices in Switzerland and the U.S. Since 1997, over 750 patients have been referred by the Marion Institute and treated by a BM provider either in Switzerland, the American Center for Biological Medicine, Arizona or at other biological medicine practices around the U.S.

Biological medicine is defined as "...a holistic approach to health and wellness that allows the human body to maximize its own innate healing powers" (<http://www.marioninstitute.org/biological-medicine-network/about-biological-medicine>, 2016). BM uses multi-disciplinary approaches to determining the root cause of disease. It incorporates some elements from all the five categories of CAM therapies mentioned previously: alternative whole medical systems, mind-body interventions, biologically based therapies, manipulative and body based

therapies, and energy therapies. Individuals are treated rather than their diseases and diagnostic assessments are more in-depth and include: detailed nutritional assessment, computer regulation thermography (noninvasive review of organ systems), dark field microscopy (looks at blood samples in a natural setting, within the dark field of a microscope), heart rate variability (HRV which looks at beat-to-beat alterations in heart rate) and other specialized blood testing (metal and other toxicities, metabolic function, and presence of allergies are examined) (www.marioninstitute.org/biological-medicine-network/diagnostic-techniques, 2016). Biological medicine searches for root causes of illness which over time allow toxin build-up in the body. Underlying factors include: diet, food allergies, intestinal disturbances, family history, stress, aging, environmental factors, heavy metals, dental disturbances (presence of amalgam, mercury), hyperacidity, trauma, exposure to bacteria or viruses, and electromagnetic disturbances. (www.marioninstitute.org/biological-medicine-network/diagnostic-techniques, 2016).

Treatments and therapies are broad based and include: detoxification diets, neural therapy (homeopathic remedies), vitamin and nutritional infusions, massage therapy, lymphatic drainage, holistic dentistry, cryotherapy, acupuncture, colon therapy, chiropractic, herbal medicine, infrared sauna, chelation reflexology, electron foot baths, oxygen therapy, craniosacral therapy, whole body hyperthermia, soundbed therapy, valkion therapy, magnapulse, dynamic light therapy, matrix regeneration therapy, ozone, electromagnetic therapy, microcurrents, and clearmind analysis.

Thomas Rau, MD, a well-known physician leader, practitioner, researcher, and author in BM, provides extensive technology, facilities and clinical services in Switzerland and routinely participates in training seminars around the world to educate physicians and other practitioners in the scientific knowledge, methods and techniques used in biological medicine. (See Rau 1996, 2000, 2001 and A Guide to Paracelsus Biological Medicine, Biological Medicine: the future of natural healing, 2011).

Formal research on BM in the literature however is limited. There is little research in the mainstream literature concerning the field of biological medicine in its totality although various modalities have been individually studied such as chiropractic medicine and acupuncture for example which have extensive studies accessible in the literature. For this research project, studies were sought that specifically addressed the overall field of

biological medicine as a practice in totality. An internal retrospective patient study to evaluate the effectiveness of prostate cancer patients treated at the Paracelsus Klinik in 2006 was a singular patient study located (Ade, 2006). In this retrospective study, a questionnaire was administered to 87 patients who had received a prostate cancer diagnosis between the years 2000 and 2005. The patients were asked a series of questions to understand their state of health and therapy processes with both allopathic (traditional) and/or biological medicine (Ade, 2006). The response rate was 55% and findings indicated that 90% of the patients would recommend treatment at the Klinik. Other significant findings included:

- More than 70% of patients reported improved overall health without significant deterioration in prostate specific symptoms.
- 90% indicated they were very satisfied.
- 75% judged their overall experiences with biological medicine to be better than their allopathic previous experience.
- Two-thirds reported a better quality of life after biological treatment.

Survey studies in the mainstream literature generally consist of national randomized phone survey studies. This is useful for prevalence studies in particular. To get at patient evaluation and satisfaction, studying discrete patient populations that have had CAM treatment is an excellent way to obtain feedback (See Gray 2002). However, a limitation of this method is that patients have self-selected for the treatment so they may be predisposed to be biased in their evaluation of their outcome of care. However, while the nature of patient satisfaction is subjective; this quality is viewed as acceptable and arguably necessary in a study of a patient cohort's experience of care. Little is reported formally about the results of the field of biological medicine but anecdotal and testimonials are highly rated. This study is a step in the direction to move from a purely testimonial approach to a qualitative research methodology in understanding the motivations and results of care for this patient population. It is not often that a researcher has the opportunity to survey a discrete patient cohort like this one and this is another reason why this study should be undertaken. It is hoped that the information gained will begin to suggest further study and means of patient assessment of biological medicine programs. Additionally, it is hoped that this study may help to add to the body of knowledge concerning, "Why do people turn towards CAM?"

III. Data and Methods:

The data will be primary survey data gathered from a group of patients that received biological medicine care between 1997 and 2015. The statistical tools employed are descriptive statistics with the goal of describing the patient population's experience with biological medicine and providing a basis for future research studies.

Patient Population: The patient population consisted of a cohort of patients that had been previously referred by the Marion Institute and received biological medicine care anytime during the time period of 1997 to present (2015). The Marion Institute database had 786 patients listed and from this initial list 112 were eliminated as either out of the country or deceased, then 90 more were eliminated due to unknown address. The final population consisted of 584 mail and 13 email patients for a total population of 597.

Data Tool Development: The questionnaire (see **Appendix B**) was developed in concert with a review of the literature on patient satisfaction, population surveys, surveys of complementary and alternative medicine, and patient cohort studies (See Carr-Hill 1992, Donabedian 1988, Fenton 2012, Gray 2002, Mangelsdorff 1979, Molassiotis 2005, Oldendick 2000, Pascoe 1983, Palinkas 2000, Pincus 1983, Sitzia 1997, Stussman 2013, Taylor 1994, Ware 1983, 1988). Certain questions from Ware et al's Form II of the Patient Satisfaction Questionnaire (PSQ) have been incorporated into the questionnaire since they have been tested and received a favorable empirical validity (Ware 1983, 1988). The questionnaire was also developed with descriptive information from the Marion Institute and biological medicine website (See Diagnostic Techniques 2015, Paracelsus Biological Medicine Network 2008, www.drarausway.com, 2011) and in conjunction with extensive advice of staff from the Marion Institution that had administered the biological medicine program over the years. The questionnaire has a combination of multiple choice type questions as well as some open ended questions to be sure to gain additional information from patients.

The questionnaire underwent extensive review prior to administration. It was vetted and revised by Marion Institute staff familiar with the BM program, a policy department professor at University of Massachusetts

Dartmouth, and several patients who reviewed the document on line to test the survey instrument for understandability and ease of completion. As a result of these multiple reviews, the survey was revised considerably. The final survey was printed and prepared for a mailing and also input into Survey Monkey by the Marion Institute manager. The mailing was sent once and patients had several weeks to respond. Some of the original mailing population also had an email address registered with the Marion Institute and after approximately 10 days, these patients were emailed as a reminder to either send in their paper questionnaire or take the survey on line. There were only 13 patients for whom the only address and survey method was via email. Survey Monkey was used for online responses. All paper surveys were then manually entered into the Survey Monkey system to facilitate analysis of each question's data and to provide an overall excel database from which analyses could be conducted.

Variables and Organization of Data: The questionnaire was designed to obtain data about the following information: (a) how patients first became introduced to biological medicine, what their health goal was in seeking biological medicine care, and the reasons why biological medicine was important to them over traditional medicine; (b) descriptive information about the type(s) of illness (es), most common diagnostic tests and therapies the patient cohort received; (c) perceived satisfaction levels, reported changes in health status, and types of biological medicine providers used; (d) whether biological medicine is recommended or not, how they pursued follow-up care and the extent to which patients used biological medicine exclusively in the future since their initial treatment with it; (e) a sociodemographic profile of the patient cohort; and (f) some limited statistical analysis to look for any associations or statistically significant patterns between demographic characteristics and use of biological medicine. Chi Square analysis was used to analyze the independent variables of age, sex, and education vs the dependent variable of health goal to see if any statistically significant patterns emerged. Even though the sample is insufficient to infer statistically this analysis was attempted.

This research explores the following hypotheses for the patient population:

- I. Patients choose to pursue BM only when their illness is end stage and morbidity is unbearable. The extent of illness/stage of disease is highly correlated with use of BM in this patient population.
- II. Having a higher severity of illness is an important predictor of a patient's use of BM.

- III. Patients receiving care from the BM network report improved satisfaction as compared to their satisfaction levels when receiving traditional medicine. A majority of patients have continued to only utilize BM forms of therapy and care.
- IV. Higher income levels (\$100,000 or greater) are highly correlated with extensive use of BM.

IV. Findings and Analysis: Of the potential 597 respondents, we received 28 paper survey responses and 13 on line survey responses for a total of 41. At this return rate of 6.8% (41/597), a confidence level of 80% with a margin of error of 10% is associated with the following results and analyses.

Introductory Section: Questions 1-9 concerned the solicitation of information about how patients learned about the biological medicine field, their health care goals, whether they continued to follow-up exclusively with biological medicine care along or in conjunction with traditional medicine, where they generally received their care and information about their initial illness stage, diagnosis, and systems. Respondents were asked to rank their reasons for importance in choosing a CAM method over traditional medicine.

Table 1 below shows that overwhelmingly almost 90% learned about BM from friends or family – so word of mouth was the greatest source of information and referral.

Answer Options	Response Percent	Response Count
My regular health care provider	2.9%	1
Friends or family	88.2%	30
The internet (e.g. Google search)	0.0%	0
Biological Medicine Network website	0.0%	0
Marion Institute website	8.8%	3
Other (please specify)		11
<i>answered question</i>		34
<i>skipped question</i>		7

Table 2 below shows that seeking a cure was the first priority for choosing biological medicine care while maintaining health was the second priority. Seeking a cure and wellness, interestingly, were similarly rated as reasons for seeking biological medicine care. Data completed in the other category indicated that four respondents indicated life threatening illnesses (4/41) or about 10% of respondents. This was a surprise as I had anticipated a larger percentage of respondents having end staged illnesses (Hypothesis I).

Table 2: What was your health goal when seeking care and treatment at a biological medicine clinic?		
Answer Options	Response Percent	Response Count
To maintain health	31.7%	13
To seek a cure	39.0%	16
To manage remission	4.9%	2
To treat a chronic illness	19.5%	8
To alleviate symptoms of an illness (e.g., allergies, stress)	4.9%	2
Other (please specify)		26
<i>answered question</i>		41
<i>skipped question</i>		0

Consistent with this finding is that patients overwhelmingly sought biological medicine care at the beginning or middle stage of their illness (91%) rather than the advanced stage (See **Table 3** below).

Table 3: At what stage did you seek care at a biological medicine clinic?		
Answer Options	Response Percent	Response Count
Beginning (never sought traditional care pathway) - prior to being diagnosed	26.5%	9
Beginning (in conjunction with traditional care) - after being diagnosed	32.4%	11
Middle	32.4%	11
Advanced stage	8.8%	3
After being declared "end-stage"	0.0%	0
Other (please specify)		7
<i>answered question</i>		34
<i>skipped question</i>		7

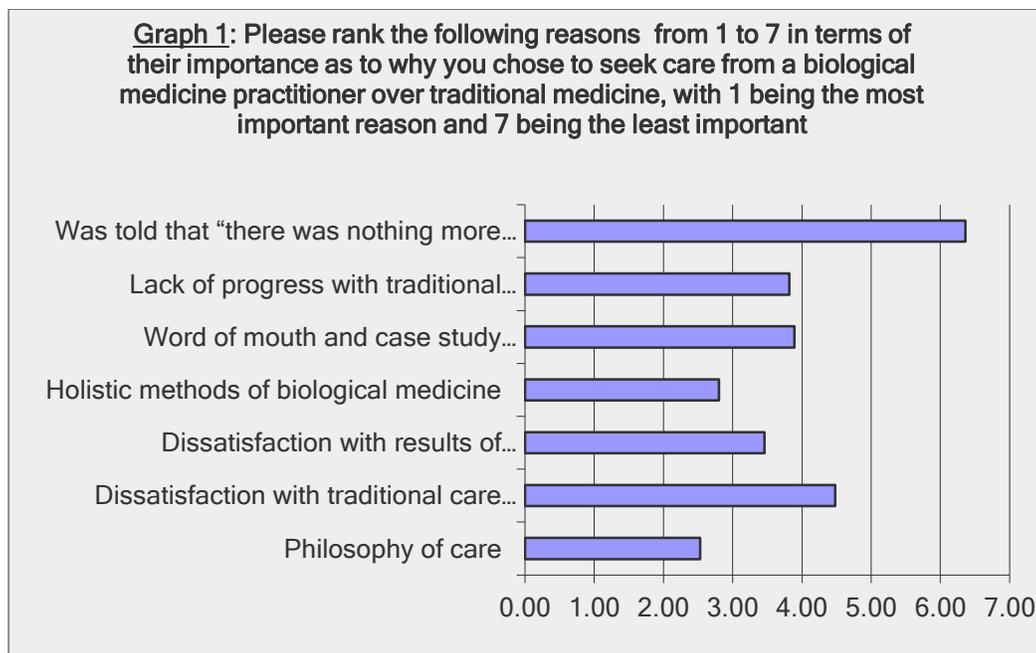
These data seem to refute Hypothesis I. Patients come to seek biological medicine care at earlier stages and to treat illnesses/cures as well as for health maintenance/wellness but not primarily because of life threatening illness. Moreover, almost 27% never sought traditional care at all. **Table 4** and **Graph 1** further help explain this result. Reasons for choosing biological medicine were explored and patients were asked to rank their reasons for choosing biological medicine from one (most important reason) to seven (least important reason). The rating average below shows that the top two reasons why it was chosen was philosophy of care and holistic method. The third most important reason was dissatisfaction with the results of traditional care. Interestingly the least important reason ranked by the patient cohort was that "there was nothing more that could be done." This further suggests that Hypothesis I is untrue. The drivers of biological care are more philosophically based rather than as a last resort for an end stage illness. Because traditional medicine is less holistic than biological

medicine, it follows that the third reason for choosing the care model was dissatisfaction with traditional care results. Many hand written comments further supported these results: seven patients noted a desired to be proactive and holistic in their care; three could not tolerate traditional medicine or therapies; eleven sought a focus on wellness and positivity; and eleven noted past success with biological medicine care as a reason for selecting it. .

Table 4: Importance of reasons for selecting biological medicine as ranked from 1-7 (one as most important; 7 as least important):

Answer Options	1	2	3	4	5	6	7	Rating Average	Response Count
Philosophy of care	15	6	3	3	1	0	4	2.53	32
Dissatisfaction with traditional care provider	2	2	2	4	7	7	1	4.48	25
Dissatisfaction with results of traditional care	3	6	5	4	4	4	0	3.46	26
Holistic methods of biological medicine	6	10	5	4	3	2	0	2.80	30
Word of mouth and case study testimonials about results	3	1	9	4	5	6	0	3.89	28
Lack of progress with traditional medicine in solving illness	3	4	4	7	4	6	0	3.82	28
Was told that “there was nothing more that could be done”	1	0	2	1	0	1	23	6.36	28
<i>answered question</i>									35
<i>skipped question</i>									6

Graph 1: Please rank the following reasons from 1 to 7 in terms of their importance as to why you chose to seek care from a biological medicine practitioner over traditional medicine, with 1 being the most important reason and 7 being the least important

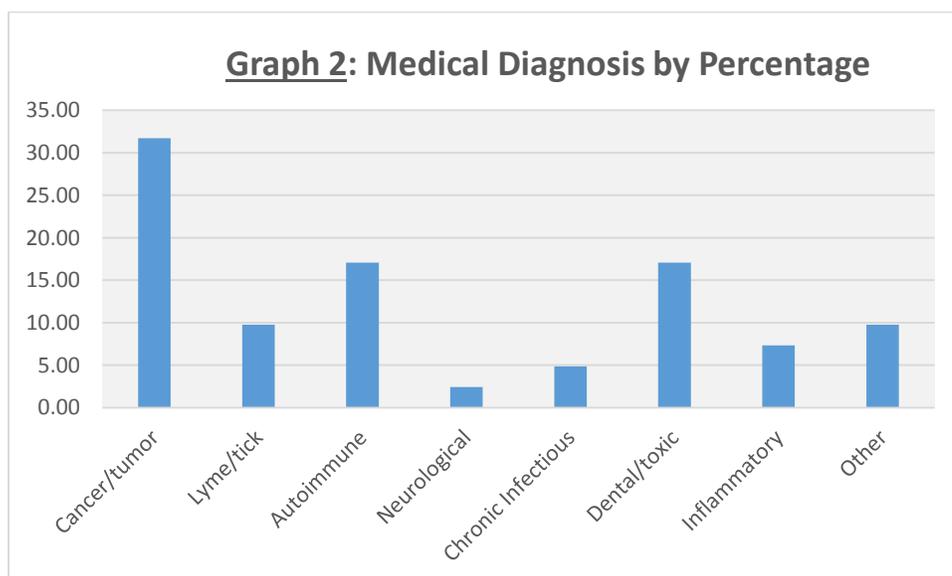


Diagnosis and Care: Questions 10-14 asked respondents to provide basic information about their diagnostic tests received, the severity of their illness, therapies they received, how severity progressed over time, and which therapies and diagnostic tests they believed to be most effective in improving their health status. **Table 5** and **Graph 2** below show the percentages of respondents by disease types. The largest percentage at almost

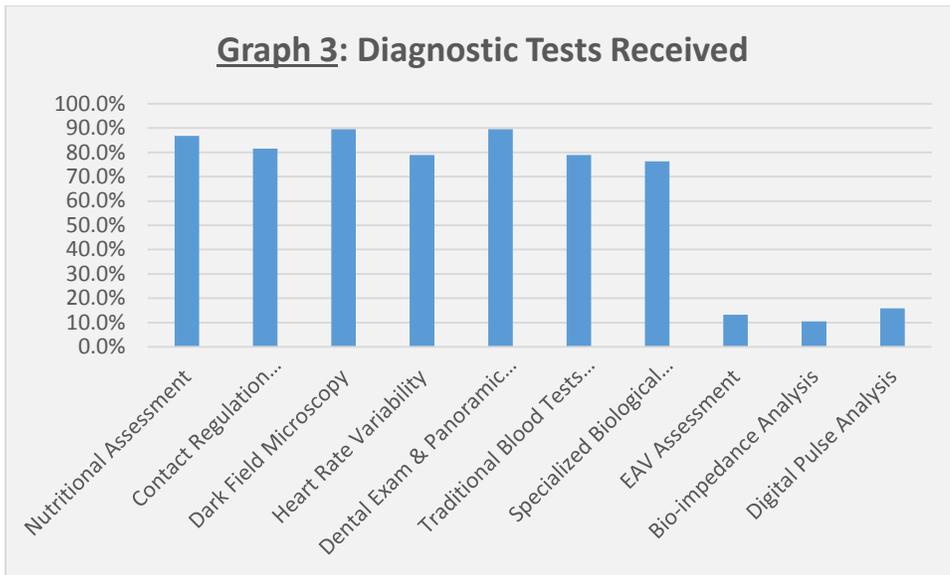
32% were cancer patients. The types of cancer reported was: 4 prostate (31%), 4 breast (31%), 2 non-specified cancer (15%), one each of bladder cancer, lymphoma, and head and neck cancer (7.66% each). Tied for second most frequent diagnoses were autoimmune diseases (Hashimoto, Crohns, rheumatoid arthritis) and dental and toxicological problems (heavy metal loads, dental disturbances) at 17% each. Third was the combined score of chronic infectious diseases (hepatitis, various infectious diseases, Epstein Barr) and chronic inflammatory diseases (fibroses, pneumonia, asthma, lumbovertebral, pain management) which totaled 12% (These two categories were combined because of their chronic nature). About 10% reported problems with Lyme disease and other (of which the majority were prevention or health maintenance issues such as health assessment or maintenance, high blood pressure, sleep issues, digestion issues).

Table 5: Medical diagnosis when first sought care at a biological medicine clinic

Answer Options	Response Percent	Response Count
Cancer and/or tumorous disease:	31.7%	13
Lyme disease or other tick-borne illness:	9.8%	4
Autoimmune disease:	17.1%	7
Neurological disease:	2.4%	1
Chronic Infectious disease:	4.9%	2
Dental and/or Toxicological problem:	17.1%	7
Chronic inflammatory disease:	7.3%	3
Other:	9.8%	4
<i>answered question</i>		41
<i>skipped question</i>		0



Of the ten diagnostic tests listed, the majority of patients received seven tests as shown in **Graph 3** below:

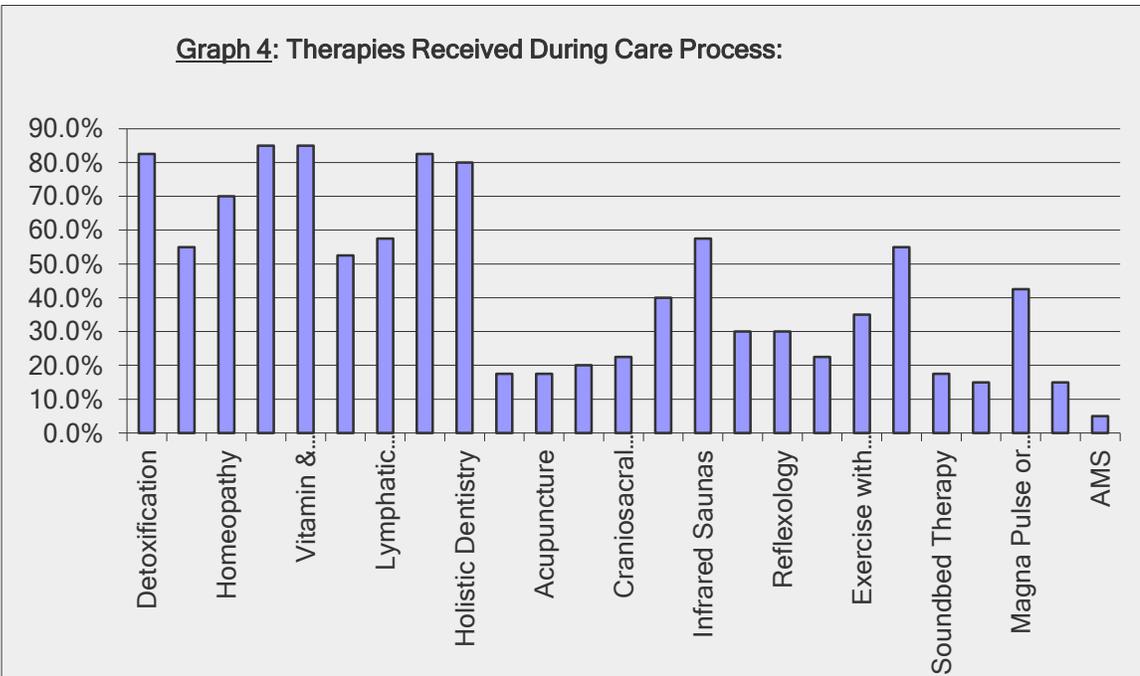


Therapies received are shown in **Table 6** and **Graph 4** below, on the next page, in rank order. Five therapies were the most prevalently administered (greater than 80% of respondents) and these included: nutritional supplements, vitamin and nutritional IV infusions, detoxification, colon hydrotherapy, and holistic dentistry. At least 50% received homeopathy, lymphatic drainage, infrared saunas, neural therapy, hyperthermia treatments and massage therapy.

Table 6: Therapies received in the course of care

Answer Options	%	Count
Nutritional Supplements	85.00%	34
Vitamin & Nutritional IV Infusions	85.00%	34
Detoxification	82.50%	33
Colon Hydrotherapy	82.50%	33
Holistic Dentistry	80.00%	32
Homeopathy	70.00%	28
Lymphatic Drainage	57.50%	23
Infrared Saunas	57.50%	23
Neural Therapy	55.00%	22
Whole Body Low Level Hyperthermia	55.00%	22
Massage Therapy	52.50%	21
Magna Pulse or Pulsed Electromagnetic Field Therapy	42.50%	17
Herbal Medicine	40.00%	16
Exercise with Oxygen Therapy (EWOT)	35.00%	14
Chelation	30.00%	12
Reflexology	30.00%	12
Craniosacral Therapy	22.50%	9
Electron Foot Baths	22.50%	9
Chiropractic Treatments	20.00%	8
Whole Body Cryotherapy	17.50%	7
Acupuncture	17.50%	7
Soundbed Therapy	17.50%	7
Valkion Therapy	15.00%	6
Ozone Therapy	15.00%	6
AMS	5.00%	2

Graph 4: Therapies Received During Care Process:

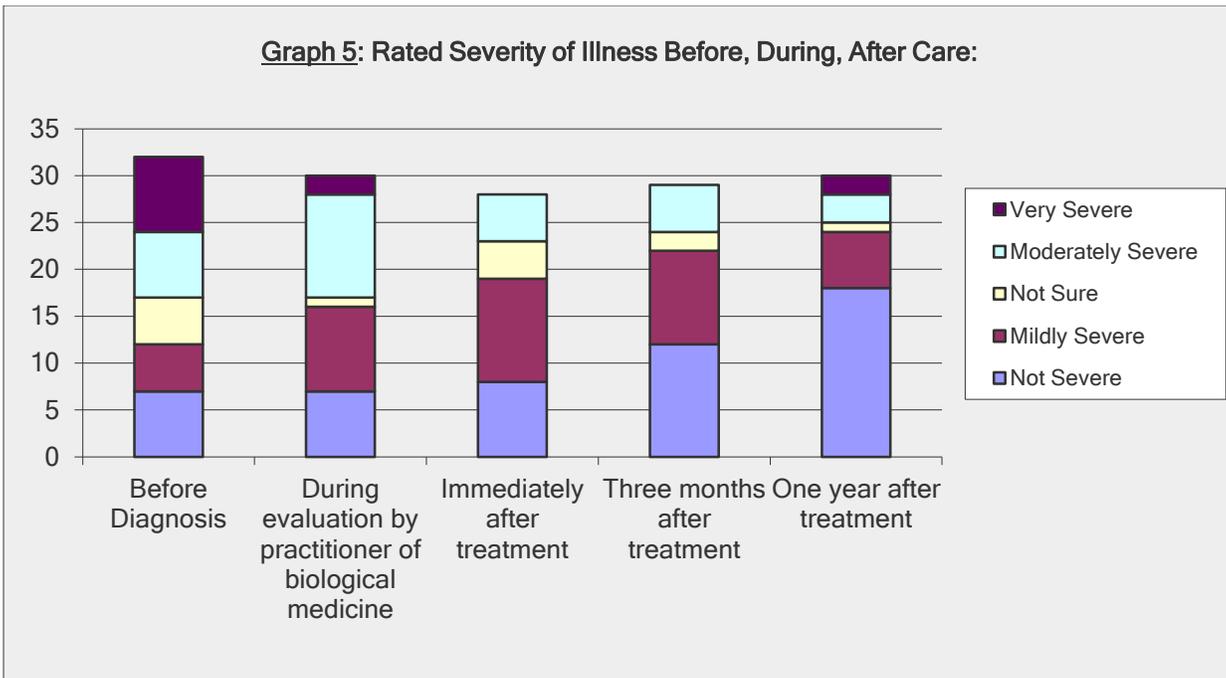


Patients were asked to rate how their severity of illness changed over the course of their care starting with before diagnosis and ending with one year after treatment. **Table 7** below and most notably **Graph 5** below show the progression. Of note first are the data presented before diagnosis which are highlighted in yellow in **Table 7**. Fifteen patients report moderately or very severe illness before diagnosis while twelve reported mildly or not severe. Also five patients reported not being sure regarding the severity prior to BM diagnosis. These findings were a surprise as it is easy to expect that higher severity would be a predictor of use of BM. These data suggest almost an equal prediction of use for higher severity and lower severity of illness; this suggests that patients seek BM care for both wellness/health maintenance as well as a seeking a cure and lessening of symptoms almost to an equal degree in this study's results.

Answer Options	Very Severe	Moderately Severe	Not Sure	Mildly Severe	Not Severe	Response Count
Before Diagnosis	8	7	5	5	7	32
During evaluation by practitioner of biological medicine	2	11	1	9	7	30
Immediately after treatment	0	5	4	11	8	28
Three months after treatment	0	5	2	10	12	29
One year after treatment	2	3	1	6	18	30
Other (please specify)						9
				<i>answered question</i>		34
				<i>skipped question</i>		7

Moreover, **Graph 5** demonstrates how over the course of time the “very severe” ratings diminished with treatment while the “not severe” ratings increased over time. These trends continued; however, there was a slight increase in very severe in the ratings one year after treatment. These patient reported data show a progression of reduced severity of illness. This suggests some success with improving patient health status with the treatment and therapies of BM. Further study specifically in this area would be very valuable for future research.

Graph 5: Rated Severity of Illness Before, During, After Care:



Similarly the data from **Table 8** support these findings about improved health status. Patients reported based on rating averages that the top two reasons that biological medicine improved their health status was that it improved their general health, and reduced their severity of illness. Further research that connects the specific therapies to a reduction in severity of illness is suggested for the future.

Table 8: Rank from 1-4 how biological medicine improved your health.

Answer Options	1	2	3	4	Rating Average	Count
Severity of illness lessened	11	4	6	3	2.04	24
Illness/condition went into remission	3	4	4	10	3.00	21
Improved general health	13	8	3	2	1.77	26
Felt better emotionally	3	9	8	4	2.54	24
<i>answered question</i>						30
<i>skipped question</i>						11

Satisfaction Levels: Questions 15 -23 sought information, assessments, and rankings from respondents about their perceived level of satisfaction with the biological medicine care they received. They also asked about the type of providers they used and currently use and whether they would recommend biological medicine care to others. Information about any perceived limitations was also requested. All providers listed were used but the

three most common providers were M.D., N.D. (Naturopathic Doctor) and Massage Therapist as shown in

Graph 6 below:

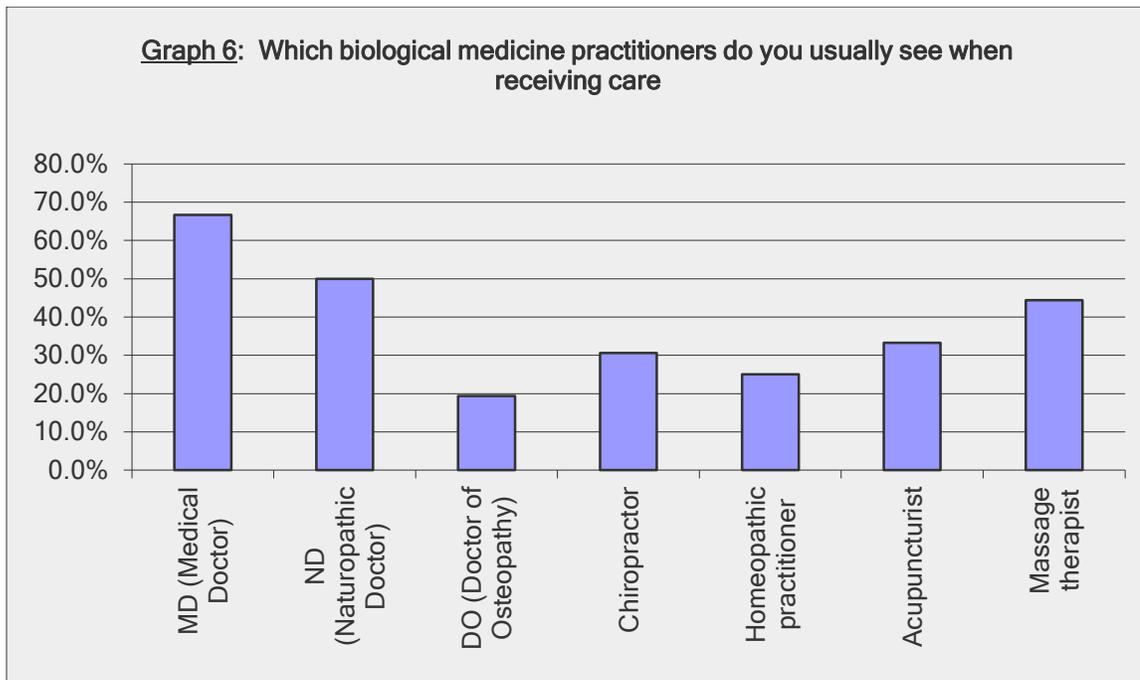


Table 9 provides a series of satisfaction ratings. To analyze these data generally the strongly agree and agree statistics were added together and a percent was computed. The data show very high levels of satisfaction with care. 85% of patients were very satisfied with the medical care received while 75% reported that the care received from the doctors and caregivers was just about perfect. Almost 73% of patients reported that their quality of life was excellent after receiving BM care. However, 46% indicated that they believed there were things about the BM care that could be better. This area would be useful to probe further in other studies to learn what patients would like to see improved. Quality of life assessments prior to receiving BM were varied across the board; this would be expected since this patient cohort has some patients approaching BM care from a wellness/health maintenance perspective and some with more serious debilitations. Finally, almost 93% would recommend BM to friends and relatives. This finding is also not surprising. These results suggest that the proposition in Hypothesis III that patients report greater satisfaction with BM care than with traditional medicine is most likely true for this patient cohort. This would need to be retested with a larger patient population because the 41 patients are not sufficiently representative of the full patient cohort and cannot prove this hypothesis.

Table 9: Ratings of Satisfaction with care, doctors, quality of life before/after biological medicine care

Answer Options	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree	Percent	Count
I'm very satisfied with the medical care I received.	25	9	2	4	0	85.00	40
The care I have received from the doctors and caregivers in the biological medicine network was just about perfect.	17	13	4	2	2	75.00	38
There are things about the medical care I received from a practitioner in the biological medicine network that could be better.	3	15	10	10	1	46.15	39
My quality of life before receiving biological medicine care was excellent.	5	11	7	8	7	42.11	38
My quality of life after receiving biological medicine care is excellent.	11	18	7	3	1	72.50	40
I would recommend biological medicine to my friends and relatives.	25	12	2	0	1	92.50	40
<i>answered question</i>							40
<i>skipped question</i>							1

After looking at strongly positive satisfaction and recommendation levels, it would be expected that patients might continue primarily with BM care. **Table 10** however shows that this is not the case. The majority of patients, almost 60%, chose to receive both. This is consistent with the direction that the NIH has taken in supporting the development of medicine curricula and care that integrates both traditional and CAM practices. It would be informative to delve further into why patients still are seeking both modes of care while their satisfaction levels appear so high. Limited availability of BM in the U.S. and the high cost of BM care could be two factors both of which are mentioned by patients reporting limitations of BM care in the open ended question on limitations of BM care.

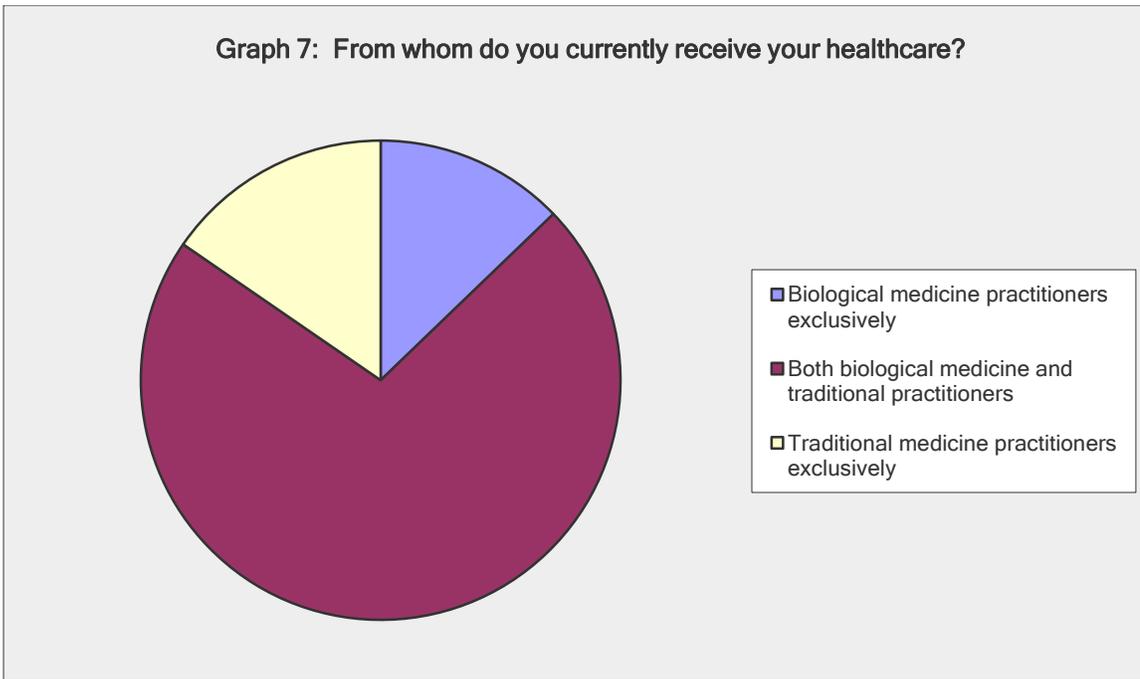
Table 10: After starting to receive care from a biological medicine clinic, did you continue to receive traditional health care simultaneously?

Answer Options	Response Percent	Response Count
Yes, I received both biological medicine care AND traditional medicine care.	58.5%	24
No, I only received biological medicine care.	41.5%	17
<i>answered question</i>		41
<i>skipped question</i>		0

Table 11 and **Graph 7** show similar results in that follow-up care is primarily with both BM and traditional practitioners – almost 72% of patients. About 15% chose traditional exclusively and 13% BM exclusively.

Table 11: From whom do you currently receive your healthcare?

Answer Options	Response Percent	Response Count
Biological medicine practitioners exclusively	12.8%	5
Both biological medicine and traditional practitioners	71.8%	28
Traditional medicine practitioners exclusively	15.4%	6
<i>answered question</i>		39
<i>skipped question</i>		2



Sociodemographic Characteristics: The last series of questions concerning basic socioeconomic questions were solicited to be used primarily as independent variables including, sex, age, education level, family income, marital status, and means of payment for care. These data are used to generate a typical profile of the BM user of care. Demographic data showed that 60% of respondents were female, while 40% were male; 54% were in the age group of 51-65 while 23% were aged 41-50 and 10% were under 40 and 13% were over 66. Educational level was interesting as the highest percentage was highly educated with post graduate degrees (54%) followed by undergraduate degree (28%), with only 18% with associate degree or high school level. Family income level was overwhelmingly high at 65% over \$150,000 per annum. 79% were over \$101,000 per annum. This is not surprising since there is little insurance to cover BM care and it is expensive. For this cohort of patients it appears that wealth is a precursor. This supports Hypothesis IV and suggests that there is a relationship between wealth (as defined as an income greater than \$100,000) and biological medicine care in

this cohort of patients. This is likely not so of a more general population of patients in the community, many of whom, use aspects of CAM. This would be an interesting topic to explore in the broader CAM population through the National Health Interview Survey provided by the CDC. Marital status data showed that 82% were married, 11 widowed, and 7% single/divorced. These data differed from other studies which typically showed CAM users as single. Only 4% of respondents used any type of health insurance with the remainder paying out of pocket or with assistance from friends or family. The typical patient profile in this study is a BM user is highly educated, wealthy, female (60%), married, and middle aged.

Chi Square analysis was run to test for any relationship or pattern between age, sex, and education level and health goal. Did age, sex, or education level have a relationship to the motivation for selecting biological medicine as a mode of care delivery? The results showed that there was no statistically significant pattern to the selection of the top health goal with respect to age and sex; however, there was a statistically significant pattern to the selection of the top health goal with respect to education level. See the analysis below:

Contingency Table - Health Goal by Sex			
OBSERVED	Male	Female	Totals
To maintain health	7.00	5.00	12.00
To seek a cure	6.00	10.00	16.00
To manage remission	0.00	2.00	2.00
To treat a chronic illness	3.00	5.00	8.00
To alleviate symptoms of an illness	0.00	2.00	2.00
Totals	16.00	24.00	40.00
EXPECTED	Male	Female	Totals
To maintain health	4.80	7.20	12.00
To seek a cure	6.40	9.60	16.00
To manage remission	0.80	1.20	2.00
To treat a chronic illness	3.20	4.80	8.00
To alleviate symptoms of an illness	0.80	1.20	2.00
Totals	16.00	24.00	40.00
p - value	0.353387		

Contingency Table - Health Goal by Age					
OBSERVED	< 40	41-50	51-65	> 66	Totals
To maintain health	1.00	2.00	9.00	0.00	12.00
To seek a cure	2.00	4.00	5.00	5.00	16.00
To manage remission	0.00	0.00	1.00	0.00	1.00
To treat a chronic illness	1.00	2.00	5.00	0.00	8.00
To alleviate symptoms of an illness	0.00	1.00	1.00	0.00	2.00
Totals	4.00	9.00	21.00	5.00	39.00
EXPECTED	< 40	41-50	51-65	> 66	Totals
To maintain health	1.23	2.77	6.46	1.54	12.00
To seek a cure	1.64	3.69	8.62	2.05	16.00
To manage remission	0.10	0.23	0.54	0.13	1.00
To treat a chronic illness	0.82	1.85	4.31	1.03	8.00
To alleviate symptoms of an illness	0.21	0.46	1.08	0.26	2.00
Totals	4.00	9.00	21.00	5.00	39.00
p-value	0.462351				

Contingency Table - Health Goal by Education Level					
OBSERVED	HS	Assoc	Under	Grad	Totals
To maintain health	1.00	1.00	2.00	8.00	12.00
To seek a cure	0.00	1.00	5.00	10.00	16.00
To manage remission	0.00	0.00	1.00	0.00	1.00
To treat a chronic illness	1.00	2.00	2.00	3.00	8.00
To alleviate symptoms of an illness	0.00	1.00	1.00	0.00	2.00
Totals	2.00	5.00	11.00	21.00	39.00
EXPECTED	HS	Assoc	Under	Grad	Totals
To maintain health	0.62	0.62	3.38	6.46	12.00
To seek a cure	0.82	0.82	4.51	8.62	16.00
To manage remission	0.05	0.05	0.28	0.54	1.00
To treat a chronic illness	0.41	0.41	2.26	4.31	8.00
To alleviate symptoms of an illness	0.10	0.10	0.56	1.08	2.00
Totals	2.00	2.00	11.00	21.00	39.00
p-value	0.039588	**			

V. Conclusion: This study has presented a profile of the typical user of biological medicine: wealthy, highly educated, married middle aged female, treating chronic morbidity and/or prevention. Patients are interested in BM primarily because of its philosophy and holistic model of care rather than simply because they reject

traditional medicine. This is consistent with findings from Eisenberg, Kessler, and others. There appears to be a statistically significant pattern between one's educational level and one's top reason for choosing to use BM. The research suggests that patients choose BM not only for reducing severity of illness but also for wellness and prevention. Patients did not overwhelmingly choose BM due to an end stage illness but more to improve their health and reduce morbidity with an ongoing chronic condition. Patients reported improvements in their health status – in their quality of life, lessening of the severity of illness – and an overwhelmingly strong response to recommending BM to other family and friends. Patients receiving care from this cohort are mostly wealthy and this is likely correlated to the use of BM care. Future studies should consider isolating the specific therapies that yielded the reduced severity of illness and the relationship between educational level and health goals.

Acknowledgement: The author wishes to gratefully acknowledge support from the Marion Institute, Marion, Massachusetts which paid for the costs of the survey mailing and use of Survey Monkey, as well as the leadership of the Marion Institute and its members that participated in and advised regarding this study. Michael and Margaret Baldwin, Janet Milkman, Abigail Haines Smith and Barbara Christiansen were extremely helpful with providing interviews, information, and editing for the questionnaire development. Special thanks and appreciation is given to Abigail Haines Smith who spent many hours assisting with the mailing, creating the Survey Monkey online questionnaire, and reviewing and editing the written questionnaire. Her assistance was invaluable.

Appendix A

List of 16 CAM Therapies from Eisenberg, 1993

- Relaxation techniques
- Chiropractic
- Massage
- Imagery
- Spiritual healing
- Commercial weight-loss programs
- Lifestyle diets (e.g., macrobiotics)
- Herbal medicine
- Megavitamin therapy
- Self-help groups
- Energy healing
- Biofeedback
- Hypnosis
- Homeopathy
- Acupuncture
- Folk Remedies

Appendix B

Biological Medicine Patient Questionnaire:

Thank you for agreeing to participate in this written survey. The purpose of the questionnaire is to seek your feedback and input about the biological medicine care that you or your family members have received either recently or in the past. The research is anonymous and confidential and will be conducted by a graduate student in public policy from the University of Massachusetts at Dartmouth with the consent and support of the Marion Institute. While some questions may seem repetitive, the design is intentional to calibrate responses in as much detail as possible and we ask that you complete all questions. The anonymous and confidential results from the survey will be tabulated and analyzed to enable a better understanding about the patient perspective with regard to biological medicine. We are hopeful that the results of this study will help inform the field of alternative medicine known as biological medicine.

Unless otherwise stated, please **SELECT ONLY ONE CHOICE** for each question.

Introduction:

1. How did you first learn about the field of biological medicine?
 - My regular health care provider
 - Friends or family
 - The internet (e.g. Google search)
 - Biological Medicine Network website
 - Marion Institute website
 - Other (please specify)_____

2. What was your health goal when seeking care and treatment at a biological medicine clinic?
 - To maintain health
 - To seek a cure
 - Was your illness life-threatening? Yes No
 - To manage remission
 - To treat a chronic illness (please specify)_____
 - To alleviate symptoms of an illness (e.g., allergies, stress)
 - Other (please specify)_____

3. After starting to receive care from a biological medicine clinic, did you continue to receive traditional health care simultaneously?
 - Yes, I received both biological medicine care AND traditional medicine care
 - No, I only received biological medicine care.

4. Where did you receive biological medicine care? (please specify)

5. Please rank the following reasons from 1 to 7 in terms of their importance as to why you chose to seek care from a biological medicine practitioner over traditional medicine, with 1 being the most important reason and 7 being the least important reason:
 - _____ Philosophy of care
 - _____ Dissatisfaction with traditional care provider
 - _____ Dissatisfaction with results of traditional care
 - _____ Holistic methods of biological medicine
 - _____ Word of mouth and case study testimonials about results
 - _____ Lack of progress with traditional medicine in solving illness
 - _____ Was told that “there was nothing more that could be done”

6. Is there any other reason why you have chosen to seek care from a biological medicine practitioner that is not mentioned in the previous question? (please specify) _____
7. At what stage did you seek care at a biological medicine clinic?
- Beginning (never sought traditional care pathway) – prior to being diagnosed
 - Beginning (in conjunction with traditional care) – after being diagnosed
 - Middle
 - Advanced stage
 - After being declared “end-stage”
 - Other (please specify) _____
8. What was your medical diagnosis when you first began to seek care at a biological medicine clinic?
- Cancer and/or tumorous disease (please specify) _____
 - Lyme disease or other tick-borne illness
 - Autoimmune disease – ulcerative colitis, Crohn’s disease, rheumatoid arthritis, Myasthenia Gravis, Hashimoto Thyroid disease (please specify) _____
 - Neurological disease – Multiple Sclerosis, Motor Neuron Disease, Trigeminal Neuralgia (please specify) _____
 - Chronic Infectious disease – hepatitis, chronic sinusitis, susceptibility to infections (please specify) _____
 - Dental and/or Toxicological problem – heavy metal load, dental disturbances
 - Chronic inflammatory disease – pneumonia, chronic lung fibrosis, asthma, chronic osteomyelitis, chronic prostatitis, lumbovertebral diseases (please specify) _____
 - Other (please specify) _____
9. What were your symptoms when seeking care at a biological medicine clinic? Please briefly describe:
- _____
- _____
- _____

Diagnosis and Care:

10. Mark the diagnostic tests you received in the course of your care:
- Nutritional Assessment
 - Contact Regulation Thermography
 - Dark Field Microscopy
 - Heart Rate Variability
 - Dental Exam & Panoramic X-rays
 - Traditional Blood Tests (CBX, WBC, etc.)
 - Specialized Biological Medicine Blood Tests
 - EAV Assessment
 - Bioimpedance Analysis
 - Digital Pulse Analysis
 - Other (please specify) _____

11. Which of these diagnostic tests stood out to you as most effective in diagnosing your care problem?

12. Please rate your severity of illness by placing an “X” in only one box per line:

Illness Stage	Very Severe	Moderately Severe	Not Sure	Mildly Severe	Not Severe
Before Diagnosis					
During evaluation by practitioner of biological medicine					
Immediately after treatment					
Three months after treatment					

One year after treatment					
--------------------------	--	--	--	--	--

13. Mark the therapies you received in the course of your care:

- | | |
|---|--|
| <input type="checkbox"/> Detoxification | <input type="checkbox"/> Chelation |
| <input type="checkbox"/> Neural Therapy | <input type="checkbox"/> Reflexology |
| <input type="checkbox"/> Homeopathy | <input type="checkbox"/> Electron Foot Baths |
| <input type="checkbox"/> Nutritional Supplements | <input type="checkbox"/> Exercise with Oxygen Therapy (EWOT) |
| <input type="checkbox"/> Vitamin & Nutritional IV Infusions | <input type="checkbox"/> Whole Body Low Level Hyperthermia |
| <input type="checkbox"/> Massage Therapy | <input type="checkbox"/> Soundbed Therapy |
| <input type="checkbox"/> Lymphatic Drainage | <input type="checkbox"/> Valkion Therapy |
| <input type="checkbox"/> Colon Hydrotherapy | <input type="checkbox"/> Magna Pulse of Pulsed Electromagnetic Field Therapy |
| <input type="checkbox"/> Holistic Dentistry | <input type="checkbox"/> AMS |
| <input type="checkbox"/> Whole Body Cryotherapy | <input type="checkbox"/> Other (please specify) |
| <input type="checkbox"/> Acupuncture | _____ |
| <input type="checkbox"/> Chiropractic Treatments | _____ |
| <input type="checkbox"/> Craniosacral Therapy | _____ |
| <input type="checkbox"/> Herbal Medicine | |
| <input type="checkbox"/> Infrared Saunas | |

14. Which therapies most helped your progress to improved health? (please specify)

Satisfaction Levels

15. With regard to the diagnosis, care, treatment and follow-up care you received at a biological medicine clinic, please read each statement below and rate it on the scale listed to its right. Note that some statements look similar to others, but each statement is different. Please place an “X” in the box that tells how strongly you AGREE or DISAGREE with each of the statements below

Statement	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
I'm very satisfied with the medical care I received.					
The care I have received from the doctors and caregivers in the biological medicine network was just about perfect.					
There are things about the medical care I received from a practitioner in the biological medicine network that could be better.					
My quality of life before receiving biological medicine care was excellent.					
My quality of life after receiving biological medicine care is excellent.					
I would recommend biological medicine to my friends and relatives.					

16. Was there a therapy that you felt least improved your health? (please specify)

17. Rank from 1-4 how biological medicine improved your health:

- _____Severity of illness lessened
- _____Illness/condition went into remission
- _____Improved general health
- _____Felt better emotionally

18. How long did it take for your biological medicine treatments to improve your health? (Please specify in weeks, for example, one week, two weeks, 12 weeks, etc.) _____

19. Which biological medicine practitioners do you usually see when receiving your care (please check all that apply):

- MD (medical doctor)
- ND (naturopathic doctor)
- DO (doctor of osteopathy)
- Chiropractor
- Homeopathic practitioner
- Acupuncturist
- Massage therapist
- Other (please specify)

20. Describe how your biological medicine practitioners' care and style differs from traditional medicine practitioners' care and style: _____

21. From whom do you currently receive your healthcare?

- Biological medicine practitioners exclusively
- Both biological medicine and traditional practitioners
- Traditional medicine practitioners exclusively

22. Do you use any biological medicine treatments or receive any follow-up care between visits with your biological medicine practitioner? Please list:

23. Are there any limitations to receiving care from a biological medicine practitioner?

Sociodemographic Characteristics:

24. What is your sex: Male Female

25. What is your relationship to the patient treated:

- Self
- Parent
- Other (please specify) _____

26. What was your age when you first sought care from a biological medicine practitioner?

- Teen to 20
- 21-30
- 31- 40
- 41- 50
- 51-65
- 66 or older

27. What is your education level?

- Up to high school graduation
- Associate degree
- Undergraduate degree
- Post graduate degree

28. What is your family income range?

- Under \$25,000 per annum
- \$25,000 – 40,000
- 41,000- 60,000
- 61,000 – 80,000
- 81,000 – 100,000
- 101,000 – 150,000
- Over \$150,000

29. What is your marital status?

- Single
- Married
- Widowed
- Divorced

30. How did you pay for the medical care you received with a biological medicine practitioner? (check all that apply):

- Used health insurance. Name of insurance company_____
- Privately paid (personal out of pocket expense)
- Received outside financial support. Please list organization_____
- Incurred personal debt (loan from bank, family, friend, other)
- Fundraised (applied for scholarships, utilized crowdfunding websites such as GoFundMe, KickStarter, etc.)

31. Please share any additional comments that you would like to include about your experience with biological medicine.

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