Title: Family Medicine residents' attitudes, knowledge and self-perceived competency before and after implementing an integrative medicine curriculum

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Background

Integrative Medicine (IM)- as an umbrella term for a myriad of treatments and non-western medical traditions- is a growing area of interest in the field of medicine. In all places and cultures, there exist traditional (or non-biomedical) ideas of medicine and health. This can include "natural" medicine such as herbs, oils, supplements, alternative philosophies or practices of medicine such as traditional Chinese medicine, Ayurveda, Native American and indigenous healers, osteopathic medicine or "old-wives tales". Another term for IM is complementary and alternative medicine (CAM), which implies these treatments and approaches being utilized in addition to or in place of biomedical Western medicine respectively.

As such, all patients- as people from their context- bring their experience- either actively or passively- and background into the biomedical context. Studies show that patients are using integrative medicine and that both the number of patients and the types and amount of modalities are increasing (Barnes, Bloom, Nahin, 2008). It is also known that the certification of IM practitioners (ie naturopathy, homeopathy, chiropractors, massage therapists) is increasing as well as increasing marketing to patients and popularity of IM treatments (ie herbs, essential oils, supplements, diets) (Barnes, Bloom, Nahin, 2008). With IM gaining more recognition, patients "are looking for reliable information about CAM and how to apply it to their health care" (Marcus, 2001).

However, the discussion of IM use between the patient and physician is not occurring. It is believed that patients are not sharing their CAM use because of an anticipated negative response, sense of disinterest or inability or unwillingness to engage by the PCP (Frenkel and Ben-Arye, 2001). One study that surveyed both PCPs and patients showed that patients expect PCPs to be more active in prescribing CAM- in terms of referring, knowledge and offering CAM- whereas PCPs thought that patients expected the PCP to merely be "passive listeners about patients' CAM use" (Ben-Arye, et. al., 2008). On the other side, physicians are not educated on IM modalities and practices during medical school to know and appropriately ask and engage in that conversation. Therefore, it is important that physicians are knowledgeable and aware of IM to appropriately ask and gather information from the patient and to best guide and advise patients with questions about integrative medicine and make recommendations (Marcus, 2001).

The incorporation of such education- not necessarily training- about CAM into medical curriculum and knowledge base has been slow as IM most often conflicts in philosophy of disease and greater reliance on the level and quality of evidence (Marcus, 2001). Due to the nature of many IM interventions and treatments, it is often difficult to meet the desired level of evidence (ie double-blinded RCAs). Regardless, patients are still utilizing IM and "physicians need to be well informed about… alternative therapies" (Marcus, 2001) while also supporting and encouraging the need for ongoing research in the conceptual basis, efficacy and safety of alternative therapies.

There have been varying studies and efforts to determine how best to introduce and provide education on IM. One study conducted among a small sample size of 25 family medicine physicians who voluntarily chose to participate in a course on CAM attempted to show impact of CAM instruction. The evaluation tools showed that the participants were able to give more informed advice to their patients; however, the study also showed that the participants became more selective in their referral patterns (Frenkel, Ben-Arye, Hermoni, 2004). There was also a qualitative pilot study conducted to determine the lessons learned from incorporating CAM instruction into medical school curriculum. This study did show increased awareness in CAM by the participants. More importantly, it emphasized that for a sustainable curriculum that the acceptance and openness to CAM "depended on the presence of committed CAM team faculty… and visibility of CAM practices… in the conventional setting" (Fenkel, et. al, 2007). A study conducted assessed the feasibility of an online curriculum for residents in eight residencies. The curriculum included 166 hours online and 34 hours in person following the ACGME outcome project guidelines. It evaluated competency, course completion, resident evaluation of curriculum and assessment of resident wellness. The results showed adequate course completion (>80% of curriculum) and statistically significant improvement in medical knowledge. Their results suggest that their curriculum is feasible and meaningful during residency (Lebensohn, et. al, 2012), but applied to the broader context that it may be possible that the inclusion of any IM curriculum is feasible.

As a growing topic in biomedical medicine (understood in this writing as the current structure of "westernized" medicine), there is still a limited body of research and evidence not only on the wide range of topics that fall under the umbrella of IM, but also the knowledge of effective strategies and methods of incorporating that information into the practice of (biomedical) medicine. The degree to which IM is incorporated is also partly due to the knowledge- or lack thereof- of those who practice biomedical medicine. This research study sought to assess medical knowledge, self-perceived competency and attitude toward IM of family medicine residents before and after intervention. The intervention included the incorporation of IM topics into already scheduled mandatory didactic time throughout an academic year.

Research Question

Does incorporating an Integrative Medicine curriculum into already scheduled didactic time change family medicine residents' attitudes, clinical knowledge or competency in Integrative Medicine?

Hypothesis

If residents are exposed to integrative medicine topics during scheduled didactic time in their medical residency training then their attitude and knowledge base of integrative medicine will improve. Indirectly, this will translate to increase use of integrative medicine in patient care.

Research Objectives

- Assess knowledge and attitudes of family medicine residents of various integrative medicine topics
- Present integrative medicine topics that are relevant to family medicine residents
- Determine impact of formal residency teaching of integrative medicine topics on attitudes and knowledge of family medicine residents

Method

This research was conducted at the UICOMP Family Medicine residency program over the span of a year. A set of pre-intervention surveys was distributed by email to all the current family medicine residents to gauge their knowledge of IM, current beliefs, thoughts and views of various IM topics and current level of comfort in recommending and/or utilizing IM in their practice. The specific intervention tested was the inclusion of IM information, didactics and practices during four prescheduled, mandatory didactic sessions. After the completion of the four didactic sessions, the same set of surveys was distributed by email. Statistical analysis was performed on the data to determine the results and significance of the intervention.

All current family medicine residents – approximately 30 total - received the email with the survey links to complete the surveys online anonymously. Participants created a unique identifier to allow for matching pre and post survey responses. The overall demographic make-up was even amongst gender and MD to DO. The overall age range possible is from 25 to 60 years old. Survey completion was voluntary and there was time devoted to allow for survey completion if the resident chose to do so. One of the surveys utilized was a likert scale of 1 (absolutely disagree) to 7 (absolutely agree) attitude assessment (aka IMAQ; Abbott, et. al, 2011) which is a validated instrument designed to reflect the core CAIM values for which permission to use was obtained by the original authors. The knowledge survey created by the study authors consisted of 24 multiple-choice questions. The self-perceived competency survey also given created by this study authors assessed 15 IM topics/areas on a likert scale of 1 (not comfortable) to 5 (very comfortable). All surveys are available in Appendix A.

Results

For the attitude assessment (IMAQ), there was 16 pre-surveys completed and 18 post-surveys completed with 9 participants having both pre and post surveys. Figure 1 shows the mean responses for each question of both pre and post surveys. Of all questions asked, the only question that showed a significant difference between pre and post survey was question 28 (It is ethical for physicians to recommend therapies to patients that involve the use of subtle energy fields in and around the body for medical purposes (ie Reiki, Healing touch, Therapeutic touch, etc)) with a decrease in the mean from 4.9 to 3.9 (see Figure 2).

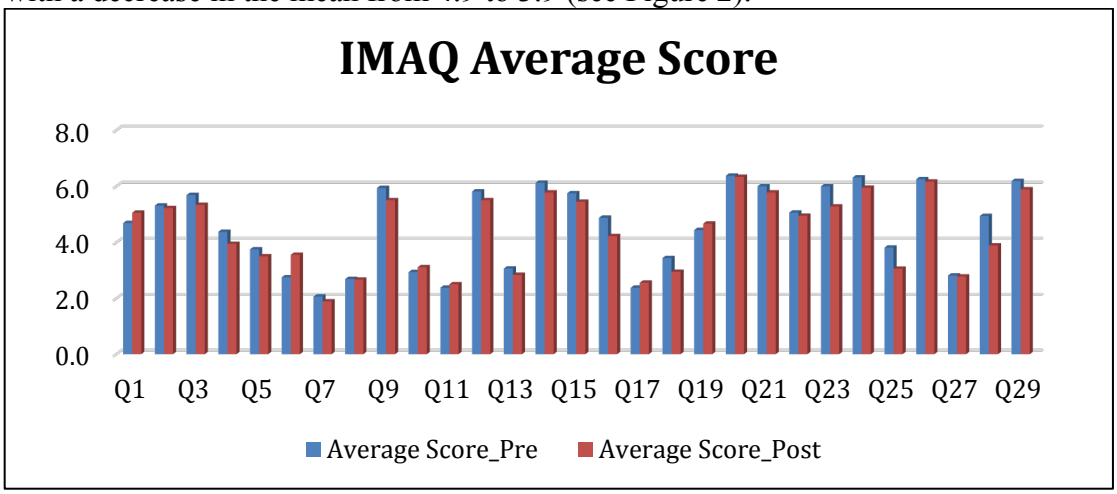

Figure 1: mean responses for IMAQ survey both pre and post survey

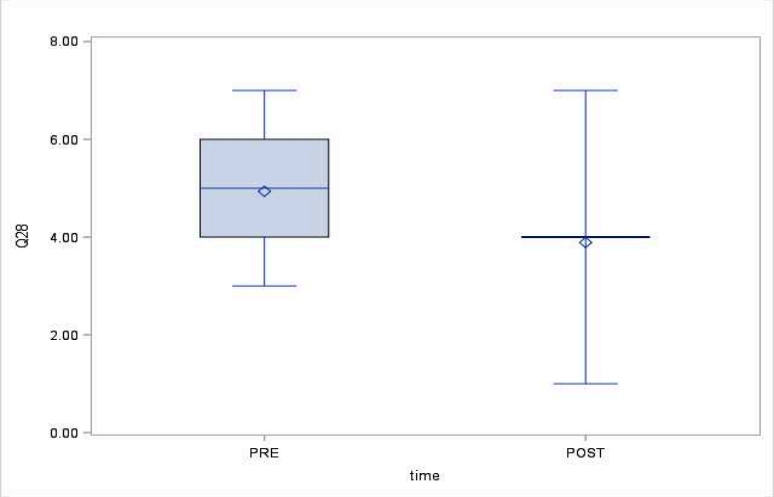

Figure 2: box and whisker plot for Question 28 that resulted in a significant difference (decrease) in attitude of agreement

For the self-perceived competency survey there was 16 pre-surveys completed and 18 post-surveys completed with 10 participants total having both pre and post surveys. Figure 3 shows the mean responses for each topic of both pre and post surveys. Of all topics asked, the only topic that showed a significant difference between pre and post survey was question 14: osteopathic manipulative medicine with an increase in the mean from 3.4 to 4.4 (see Figure 4).

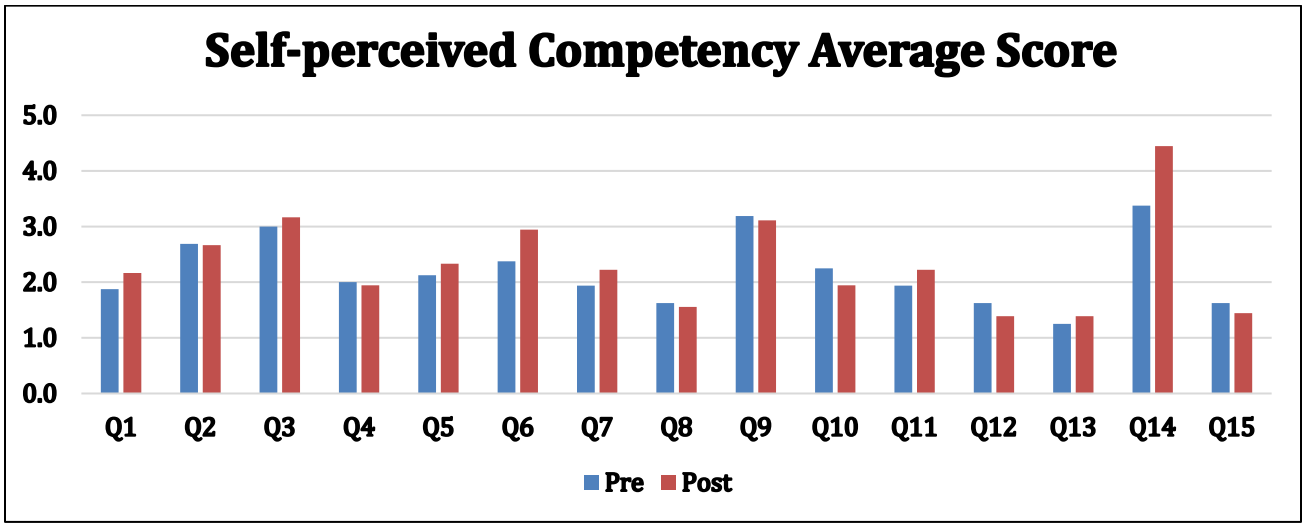

Figure 3: mean responses for self-perceived competency both pre and post survey

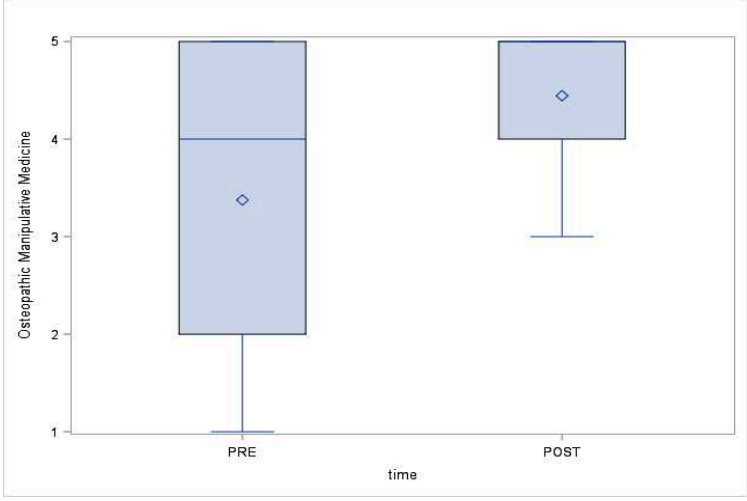

Figure 4: box and whisker plot for Question 14 with significant difference (increase) in competency of osteopathic manipulative medicine

For the knowledge survey, there was 16 pre-surveys completed and 13 post-surveys completed with 7 participants total having both pre and post surveys. Out of a total of 23 multiple choice questions, the mean and median number correct both pre and post survey was 10 with a range of 6 to 15 for the pre-survey and 7 to 14 for the post-survey. There was no significant difference between pre and post surveys.

Full analytical results for all surveys are available in Appendix B.

Conclusions & Discussion

From the attitudes survey, it is seen that of the residents surveyed there is a wide spectrum of agreement with each individual question but overall skew toward neutral to positive attitudes in accordance with CAIM values except for question 28. It may suggest that as providers become more aware of IM they become more selective in their attitude toward IM as was seen in the study by Frenkel, Ben-Arye and Hermoni (2004). Knowing what attitudes residents have towards IM can help shape where education and awareness is lacking, but this baseline data does suggest residents are open to learning more about IM.

For the self-perceived competency, residents overall at baseline feel more comfortable in the areas of meditation practices, yoga and OMM. This may be due to the more mainstream knowledge and acceptance of these practices within Western medicine. Additionally, these topics have been discussed within the residency prior to and outside of the intervention. For instance, during the intervention timeframe there was also a new DO for the MD program occurring which offers osteopathic exposure to MD residents that may have not had that experience previously and could account for the statistically significant increase in that area. Residents are less comfortable in the areas of energy medicine, homeopathy, naturopathy and Ayurveda.

Although the results of this study do not fully support the hypothesis, it does offer helpful information as to resident's baseline IM knowledge and understanding as well as areas of potential focus. Additionally, from the attitudes survey it shows that there is at least a neutral if not positive attitude toward IM that shows residents are receptive and open to learning more.

Limitations & Future Research

As with many studies, this study has its limitations. During data analysis, it became apparent that more background questions of those taking the surveys would have been helpful in the interpretation of the results such as MD v DO, year in residency and amount of previous IM education/exposure. Originally, questions of this nature were excluded from the study due to the lower number of possible participants and potential for unintentional identification of participant by the research investigators. For the post-surveys, it would have been helpful to have participants indicate how many of the IM didactic sessions/activities they participated in. It is not guaranteed for a number of reasons that all residents are able to participate in all didactic sessions and will impact the participants' exposure to IM in such a short timeframe.

There is also the concern of the number and variance of surveys used. Originally, three surveys were chosen in hopes of looking at three aspects of barriers to IM being discussed and utilized in traditional medical contexts. However, it is possible that the amount of information being asked to complete voluntarily is quite cumbersome. Looking forward, it is recommended to select one of or a combination of the surveys and reduce the amount of questions being asked to hopefully increase participation. That is the other limitation of this study is that it was a limited timeframe in which to conduct an intervention such as this and gauge actual impact. This study did offer baseline data for ongoing research to continue. Based on the current study results, there is opportunity here for ongoing research and impact in this area of residency education.

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Appendix A: Survey Instruments

Integrative Medicine Attitude Questionnaire (IMAQ)

Absolutely disagree 1 2 3 4 5 6 7 absolutely agree

1) A patient is healed when the underlying pathological processes are corrected or controlled.

____
Item 1

2) The physician's role is primarily to promote the health and healing of the physical body.

____
Item 2

3) Patients whose physicians are knowledgeable of multiple medical systems and complementary and alternative practices (i.e., Chinese, Ayurvedic, Osteopathic, Homeopathic, et.), in addition to conventional medicine, do better than those whose physicians are only familiar with conventional medicine.

____
Item 3

4) Physicians should warn patients to avoid using botanical medicines (herbs) and dietary supplements until they have undergone rigorous testing such as is required for any pharmaceutical drug.

____
Item 4

5) It is appropriate for physicians to use intuition ("gut feelings") as a major factor in determining appropriate therapies for patients.

____
Item 5

6) The spiritual beliefs and practices of physicians play no important role in healing.

____
Item 6

7) The spiritual beliefs and practices of patients play no important role in healing.

____
Item 7

8) It is irresponsible for physicians to recommend acupuncture to patients with conditions like chemotherapy-related nausea and vomiting of headache.

____
Item 8

9) End of life care should be valued as an opportunity for physicians to help patients heal profoundly.

____
Item 9

10) It is not desirable for a physician to take therapeutic advantage of the placebo effect.

____
Item 10

11) Healing is not possible when a disease is incurable.

____
Item 11

12) Physicians knowledgeable of multiple medical systems and complementary and alternative practices (i.e., Chinese, Auyrvedic, Osteopathic, Homeopathic, etc.), in addition to conventional medicine, generate improved patient satisfaction.

_____
Item 12

13) Therapeutic touch has been completely discredited as a healing modality.

_____
Item 13

14) Physicians who model a balanced lifestyle (i.e., Attending to their own health, social, family and spiritual needs, as well as interests beyond medicine) generate improved patient satisfaction.

_____
Item 14

15) Quality of life measures are of equal importance as disease specific outcomes in research.

_____
Item 15

16) Chiropractic is a valuable method for resolving a wide variety of musculoskeletal problems (beyond back pain).

_____
Item 16

17) The physician's role is primarily to treat disease, not to address personal change and growth of patients.

_____
Item 17

18) Massage therapy often makes patients "feel" better temporarily, but does not lead to objective improvement in long-term outcomes for patients.

_____
Item 18

19) The innate healing capacity of patients often determines the outcome of the case regardless of treatment interventions.

_____
Item 19

20) A strong relationship between patient and physician is an extremely valuable therapeutic intervention that leads to improved outcomes.

_____
Item 20

21) Physicians who strive to understand themselves generate improved patient satisfaction.

_____
Item 21

22) Instilling hope in patients is a physician's duty.

_____
Item 22

23) Physicians should be prepared to answer patient's questions regarding the safety, efficacy, and proper usage of commonly used botanical medicines such as Saw Palmetto, St. John's Word, Valerian, etc.

_____
Item 23

24) Counseling on nutrition should be a major role of the physician towards the prevention of chronic disease

Item 24

25) Physicians should avoid recommending botanical medicines based on observations of long-term use in other cultures and systems of healing, because such evidence is not based on large randomized controlled trials.

____
Item 25

26) Osteopathic manipulative therapy is a valuable method for resolving a wide variety of musculoskeletal problems (beyond back pain).

____
Item 26

27) Information obtained by research methods other than randomized controlled trials has little value to physicians.

____
Item 27

28) It is ethical for physicians to recommend therapies to patients that involve the use of subtle energy fields in and around the body for medical purposes (i.e., Reiki, Healing touch, Therapeutic touch, etc.).

____
Item 28

29) Physicians who strive to understand themselves provide better care than those who do not.

____
Item 29

Reverse-code the following items when scoring the IMAQ: 1, 2, 4, 6, 7, 8, 10, 11, 13, 17, 18, 25, 27.

Self-perceived competency survey

On a scale of 1 (not comfortable at all; I don't know what this is) to 5 (very comfortable)
How comfortable are you discussing the following subject/practices with patients:

1. botanical treatments
2. supplement treatment
3. meditation practices
4. acupuncture/Traditional Chinese Medicine
5. chiropractic care
6. massage treatment
7. aromatherapy
8. energy medicine (example: Reiki, Johrei)
9. yoga
10. tai chi
11. functional medicine
12. homeopathy
13. naturopathy
14. Osteopathic manipulative medicine
15. Ayurveda

Integrative Medicine Knowledge Assessment (Attitude) Survey

1. Which of the following is a significant food sources of vitamin D?
a) fresh squeezed orange juice
b) raw milk
c) homemade yogurt
d) organ meat ***

2. Which of the following statements is false?
a) vitamin D deficiency may be an independent risk factor for falls
b) Cholecalciferol (D3) is the body's preferred form of vitamin D
c) Ergocalciferol (D2) is the vitamin D form added to most foods, such as cereals and milk
d) D3 it is made from yeast, while D2 (ergocalciferol) is made from fish oil ***

3. Which statement about probiotics is false?
a) L. Rhamnosus and L. Reuteri may be used for bacterial vaginosis
b) Prebiotics are types of non-digestible fiber that decreases the bacterial load of the intestines***
c). L. reuteri may reduce crying in colicky infants that are breastfed
d) Probiotics may decrease the duration of diarrhea in children with gastroenteritis

4. Peppermint is a botanical that may be used for:
a) morning sickness
b) upper respiratory tract infections
c) IBS
d) b and c only
e) all of the above ***

5. Question 5 inadvertently not on online survey

6. The anti-inflammatory diet includes:
a) 5-7 servings per day of vegetables and 3-4 for fruits ***
q) Whole and cracked grains should be limited to 2-3 times per week
r) Dietary fish intake of once weekly
s) avoiding soy due to health concerns of the affects of phytoestrogens

7. Which of the following statements about common dietary supplements are true?
a) Melatonin supplementation does not effect circadian rhythm sleep disorders.
b) Studies results are mixed for use of Black Cohash for menopause with some women finding benefit ***
c) CoQ10 shows no benefit in Parkinson's disease
d) There is concern for hepatotoxicity with Glucosamine/chondroitin

8. A fundamental principle of homeopathy includes:
a) Disease can be cured by a substance that causes opposite symptoms to the disease itself
b) Starting with the least diluted concentration and gradually decreasing the dose
c) using a single homeopathic substance to treat a single disease sign or symptom.
d) Hering's Law of Cure where symptoms disappear in order of inside the body to outside ***

9. Biofeedback
a) Has been shown to be ineffective in treating migraine headache
b) Involves rapid breathing to stimulate the sympathetic nervous system
c) can utilize heart rate variability, electroencephalography (EEG), electromyography (EMG) and skin temperature ***
d) Has been shown to have adverse effects on blood pressure and chronic pain

10. Under the Dietary Supplement Health and Education Act of 1994 (DSHEA):
a) The FDA is responsible for taking action against any adulterated supplement product after it reaches the market. ***
b. Supplement manufacturers submit pre-market safety data about their products to FDA if the dietary supplement was on the market before 1994.
c. Dietary supplements are regulated as 'drugs', not 'foods' by the FDA
d) The plant part used for botanicals is not on the supplement label

11. Which of the following conditions is there not evidence to support the use of acupuncture ?
a) adjunct treatment for pain relief for osteoarthritis of the knee
b) post-operative nausea and vomiting
c) chemotherapy induced nausea and vomiting
d) renal insufficiency and renal failure ***

12. Which of the following statements about the integrative treatment of depression is false?
a) mindfulness based cognitive therapy can be helpful in the treatment of depression
b) St. John's wort in major depression is similarly effective as standard antidepressants
c) SAMEe (S-adenosyl-methionine) can be used for bipolar depression ***

13. MTHFR gene variants:
a) such as 677C>T and 1298A>G, are rare in the general population
b) can be related to effects such as homocysteinuria and heart disease ****
c) Should take standard dosing of folic acid during pregnancy
d) can necessitate taking a increased dose of folic acid of up to 1mg po daily.

14. The integrative approach to diabetes care may include:
a) A standard recommendation by the ADA of 100 min/week of moderate-intensity exercise

b) Considering a daily of dose chromium picolinate ***
c) CoQ10 supplementation for the symptoms of diabetic neuropathy
d) The avoidance of fenugreek in patients with significantly elevated cholesterol

15. Which of the following grains should always be eliminated from the diet in patients with celiac disease and gluten intolerance?
a) wheat berries***
b) oats
c) buckwheat
d) sorghum

16. Traditional Chinese Medicine (TCM) principles include:
a)the similarities of yin and yang
b) the five elements: fire, water, space, plants and earth
c)Qi imbalances, such as excess or stagnation are said to lead to disease***
d) Disease states can be classified according to the eight principles, such as old/new, hot/cold, yin/yang, and light/dark

17. Functional Medicine Principles emphasize:
a) that most individuals will have almost identical outcomes in response to taking a drug
b) Addressing hormonal, inflammatory and immune imbalances ***
ay) focusing mostly on current environmental and psychological factors with less emphasis on the past
d) "disease-focused" approach to patient care

18. Mindfulness Based Stress Reduction (MBSR) is
a) A practice of relaxing the body and letting the mind wander
b) A practice of taking time to meditate on past events to better be able to process current feelings
c) includes principles such as beginner's mind and non-judging, ***
d) supported by evidence that it improves anxiety/depression, but not overall mental health

19. Standardized extracts
a) guarantee a certain amount of the desired component per dose.
b) may be used to mark the genus and species of a botanical
c) are superior as therapeutic effects can be traced back to one specific active herbal constituent
d) a and b only ***
e) all of the above

20. Reiki
a)is a spiritual practice that involves a ceremony of flowers

b) uses “life force energy” to promote healing ***
c) was developed in Indonesia
d) requires the use of magnets and gravitational pull

21. Johrei
a)is the passing of spiritual light from the hand of the giver to the receiver for purifying the spirit ***
b) has its roots in traditional chinese medicine
c) requires a 6 step training process for practitioners

22. Currently all 50 states, District of Columbia, Puerto Rico and the US Virgin Islands offer licensure or certification of naturopathic doctors.
a) True
b) False, there is no licensure for naturopathic doctors
c) False, only 20 states allow licensing ***

23. Ayurveda
a) emphasizes a balance of three substances within a person (vata, pitta and kapha) results in health and imbalance is disease ***
b) is a practice of placing healing stones on the parts of the body that are ailing
c) uses rhythmic percussion to break up micro-adhesions of muscles

24. Chiropractic medicine is
a) a belief that all body ailments are related to the alignment of the spine
b) only practiced by licensed chiropractors who are required to completed 4 years of academic work and a post-graduate residency
c) a hands-on therapy to treat musculoskeletal pain to enhance the body’s function ***

*** indicates correct answer

Appendix B: Data Results

IMAQ: Attitude Questions

- 1 (absolutely disagree) to 7 (absolutely agree).
- Totally, 9 participants had both pre and post data.
- 16 participated pre;
- 18 participated post

Pre

Variable	N	Minimum	Maximum	Mean	Std Dev	Median	Lower Quartile	Upper Quartile
Q1	16	1	7	4.7	1.6	5	4	6
Q2	16	1	7	5.3	1.7	6	5	6.5
Q3	16	4	7	5.7	1.1	6	5	6.5
Q4	16	1	7	4.4	1.5	4	3.5	5.5
Q5	16	1	6	3.8	1.4	4	3	5
Q6	16	1	4	2.8	1.1	3	2	3.5
Q7	16	1	6	2.1	1.4	1.5	1	3
Q8	16	1	7	2.7	1.7	2.5	1	4
Q9	16	2	7	5.9	1.6	7	4.5	7
Q10	16	1	5	2.9	1.4	3	2	4
Q11	16	1	7	2.4	1.6	2	1	3
Q12	16	4	7	5.8	0.9	6	5	6.5
Q13	16	1	7	3.1	2.1	2	1	4.5
Q14	16	5	7	6.1	0.6	6	6	6.5
Q15	16	1	7	5.8	1.5	6	6	6.5
Q16	16	1	7	4.9	1.5	5	4	6
Q17	16	1	6	2.4	1.7	2	1	3.5
Q18	16	1	6	3.4	1.6	3	2	4.5
Q19	16	1	7	4.4	1.4	4	4	5
Q20	16	5	7	6.4	0.7	6.5	6	7
Q21	16	5	7	6.0	0.7	6	5.5	6.5
Q22	16	3	7	5.1	1.3	5	4	6
Q23	16	2	7	6.0	1.3	6	5.5	7
Q24	16	4	7	6.3	0.9	6.5	6	7
Q25	16	1	6	3.8	1.4	4	3	5
Q26	16	5	7	6.3	0.8	6	6	7
Q27	16	1	6	2.8	1.5	2.5	2	4
Q28	16	3	7	4.9	1.2	5	4	6
Q29	16	4	7	6.2	0.8	6	6	7

Post

Variable	N	Minimum	Maximum	Mean	Std Dev	Median	Lower Quartile	Upper Quartile
Q1	18	2	7	5.1	1.1	5	5	6
Q2	18	4	7	5.2	0.9	5	5	6
Q3	18	1	7	5.3	1.5	5	5	6
Q4	18	1	7	3.9	1.6	4	3	5
Q5	18	1	7	3.5	1.6	3	2	5
Q6	18	1	7	3.6	2.1	4	1	5
Q7	18	1	7	1.9	1.6	1	1	2
Q8	18	1	7	2.7	1.8	2	1	4
Q9	18	1	7	5.5	2.0	6	5	7
Q10	18	1	7	3.1	1.8	2.5	2	5
Q11	18	1	7	2.5	1.7	2	1	3
Q12	18	1	7	5.5	1.5	5.5	5	7
Q13	18	1	7	2.8	2.1	2	1	4
Q14	18	4	7	5.8	0.8	6	5	6
Q15	18	3	7	5.4	1.0	6	5	6
Q16	18	1	7	4.2	1.9	4.5	3	5
Q17	18	1	5	2.6	1.1	2.5	2	3
Q18	18	1	5	2.9	1.1	3	2	4
Q19	18	3	7	4.7	1.1	4.5	4	5
Q20	18	3	7	6.3	1.0	7	6	7
Q21	18	3	7	5.8	1.1	6	5	6
Q22	18	3	7	4.9	1.2	5	4	6
Q23	18	2	7	5.3	1.6	6	4	7
Q24	18	2	7	5.9	1.4	6.5	5	7
Q25	18	1	5	3.1	1.2	3	2	4
Q26	18	4	7	6.2	1.0	6.5	5	7
Q27	18	1	5	2.8	1.2	2.5	2	4
Q28	18	1	7	3.9	1.6	4	4	4
Q29	18	4	7	5.9	1.0	6	5	7

Only question 28 showed significant difference. P<0.05

It is ethical for physicians to recommend therapies to patients that involve the use of subtle energy fields in and around the body for medical purposes (i.e., Reiki, Healing touch, Therapeutic touch, etc.)

Pre

N	Mean	Std Dev	Minimum	Maximum	Median	Q1	Q3
16	4.9	1.2	3	7	5	4	6

Post

N	Mean	Std Dev	Minimum	Maximum	Median	Q1	Q3
18	3.9	1.6	1	7	4	4	4

Self-perceived Competency

- 1 (not comfortable) to 5 (very comfortable).
- Totally, 10 participants had both pre and post data.
- 16 participated pre;
- 18 participated post

Pre

Variable	N	Mean	Std Dev	Minimum	Maximum	Median	Lower Quartile	Upper Quartile
Q1	16	1.9	0.8	1	3	2	1	2.5
Q2	16	2.7	1.1	1	5	2.5	2	3.5
Q3	16	3.0	1.2	1	5	3	2	4
Q4	16	2.0	1.1	1	4	2	1	3
Q5	16	2.1	1.4	1	5	1.5	1	3
Q6	16	2.4	1.0	1	5	2	2	3
Q7	16	1.9	0.9	1	4	2	1	2.5
Q8	16	1.6	1.2	1	5	1	1	2
Q9	16	3.2	1.2	1	5	3	2.5	4
Q10	16	2.3	1.3	1	5	2	1	3
Q11	16	1.9	1.2	1	4	1	1	3
Q12	16	1.6	0.8	1	3	1	1	2
Q13	16	1.3	0.4	1	2	1	1	1.5
Q14	16	3.4	1.5	1	5	4	2	5
Q15	16	1.6	1.1	1	4	1	1	2

Post

Variable	N	Mean	Std Dev	Minimum	Maximum	Median	Lower Quartile	Upper Quartile
Q1	18	2.2	0.9	1	4	2	2	3
Q2	18	2.7	1.1	1	5	2	2	3
Q3	18	3.2	1.3	1	5	3	2	4
Q4	18	1.9	0.9	1	4	2	1	2
Q5	18	2.3	1.2	1	5	2	1	3
Q6	18	2.9	1.3	1	5	3	2	4
Q7	18	2.2	1.1	1	4	2	1	3
Q8	18	1.6	0.9	1	4	1	1	2
Q9	18	3.1	1.3	1	5	3	2	4
Q10	18	1.9	1.0	1	4	2	1	2
Q11	18	2.2	1.1	1	5	2	1	3
Q12	18	1.4	0.6	1	3	1	1	2
Q13	18	1.4	0.6	1	3	1	1	2
Q14	18	4.4	0.8	3	5	5	4	5
Q15	18	1.4	0.9	1	4	1	1	2

Only question 14showed significant difference. P<0.05

Osteopathic manipulative medicine

Pre

N	Mean	Std Dev	Minimum	Maximum	Median	Q1	Q3
16	3.4	1.5	1	5	4	2	5

Post

N	Mean	Std Dev	Minimum	Maximum	Median	Q1	Q3
18	4.4	0.8	3	5	5	4	5

Knowledge Survey Data results

- 7 participants had both pre and post data.
- 16 participated pre
- 13 participated post

P>0.05

Pre

N	Mean	Std Dev	Minimum	Maximum	Median	Lower Quartile	Upper Quartile
16	**10**	**2.7**	**6.0**	**15**	**10**	**8.5**	**12.5**

Post

N	Mean	Std Dev	Minimum	Maximum	Median	Lower Quartile	Upper Quartile
13	10	2.6	7.0	14	10	8	12