

A Comparative Expected Value Analysis Study on Complementary and Alternative Medical (CAM) Treatments and Procedures for 12 Common Ailments in the United States

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ABSTRACT: The present study conducted expected value analysis on ten complementary and alternative medical (CAM) procedures (acupuncture, acupressure, aromatherapy, biofeedback, chiropractic, homeopathy, hypnosis, meditation, naturopathic and reflexology) treating twelve common ailments (addiction, anxiety, arthritis, cancer, depression, high blood pressure, headaches, inflammation, insomnia, oral hygiene, pain, and stress) in the United States. It was found that medication provided more value treating alcoholism than CAM. It was found that medication provided more value reducing the prevalence of smoking than CAM. Group therapy, reflexology, psychotherapy as well as acupuncture did provide value in terms of overall healthcare costs with less than a 1-year payback period, but provided less value than yoga, exercise and meditation due to their lower costs and similar success rates when treating anxiety, depression and stress. Acupuncture, which can be up to 100 times more expensive, was not found to provide more value for patients in the early stages of diabetic neuropathy than over-the-counter medications. The cost of acupuncture which can be up to 100 times more expensive than over-the-counter medication was not found to have provided more value for patients with lower acuity levels suffering from Fibromyalgia. It was determined that for patients with lower acuity levels, aspirin or ibuprofen available for just a few cents each provided more value than both acupuncture and biofeedback in the eradication of a headache. It was determined that aspirin and ibuprofen available for just a few cents each provided more value than Turmeric in the eradication of inflammation. The average cost of acupuncture and aromatherapy per session is more than 250 times the cost of over-the-counter sleeping aid available for about 20 cents each, which had similar effectiveness results. Coconut oil is more expensive resulting in fluoride mouthwash providing more value when it comes to oral hygiene. It was determined that for patients with lower acuity levels aspirin or ibuprofen available for just a few cents each provided more value than acupuncture in the eradication of non-chronic pain.

KEY WORDS: Acupressure, Acupuncture, Aromatherapy, Ayurvedic, Biofeedback, Chiropractic, Homeopathy, Hypnosis, Meditation, Naturopathic, Reflexology.

INTRODUCTION

A majority of Americans have tried Complementary and Alternative Medicine (CAM) and over \$35 billion is spent each year (Sullivan, 2018). Many prominent hospitals and medical centers now have licensed naturopathic doctors on staff at their facilities. CAM therapies often used in the United States are prayer (45.2%), herbalism (18.9%), breathing meditation (11.6%), meditation (7.6%), chiropractic medicine (7.5%), yoga (5.1%), diet-based therapy (3.5%), progressive relaxation (3%), mega-vitamin therapy (2.8%) and visualization (2.1%) (Barnes, Powell-Griner, McFann and Nahin, 2004).

CAM is often grouped within five major domains: 1) alternative medical systems, 2) mind-body interventions, 3) biologically-based treatments, 4) manipulative and body-based methods and 5) energy therapies. Practices also include diet and clinical nutrition. Acupuncture is used for a relief or the prevention of pain and for many health

conditions. CAM treatments also include exercise, meditation, herbs, massage, exposure to sunlight, and controlled breathing. Biofeedback is a mind-body therapy used to treat medical conditions such as asthma, Raynaud's disease, irritable bowel syndrome, incontinence, headaches, cardiac arrhythmias, high blood pressure and epilepsy. Hypnosis has the potential to help relieve the symptoms of a wide variety of diseases and conditions and can be used independently or along with other treatments (Tabish, 2008).

There is evidence that CAM is effective in a wide range of areas. It has been reported that 85% of athletes improved their performance with biofeedback (Jimenez, 2017), yoga improved mental health, physical health and reduced anxiety (Ross, 2014) and using a Neti pot cleared the sinuses (Chen, 2014). Hypnosis aids relaxation and may help alleviate the tension associated with stuttering, but less than 3% of the survey respondents found hypnosis to be very successful, 20% found it somewhat successful and 77% found it to be not at

“A Comparative Expected Value Analysis Study on Complementary and Alternative Medical (CAM) Treatments and Procedures for 12 Common Ailments in the United States”

all successful (McClure, 2020). However, just because CAM has been found to be effective doesn't mean that it provides economic value when compared to lower-priced alternatives.

Addiction (alcohol)

There was evidence that acupuncture was effective on withdrawal, craving and addiction (Fletcher, 2020). However, there was no evidence that acupuncture was more effective than other comparators for substance abuse (Grant, et al, 2016) and the costs were much higher. The cost estimates for 3- weekly sessions for 3 weeks of acupuncture was \$675.

The expected cost for the Alcoholics Anonymous program is around a \$250 donation, and the American Society of Addiction Medicine (2015) reported that approximately 10% of the people enjoy long term success in their recovery. Outpatient drug -free programs cost \$1,200 and 18% remain sober after five years (Juergens, 2019).

The price for medication to treat alcoholism (Chlordiazepoxide) varies from \$25 to \$60 per month and the treatment typically lasts for three months for an average cost of around \$150. According to the National Institute of Alcohol Abuse and Alcoholism around 20 – 25% of those receiving medication and therapy remain sober after five years (Thomas, 2018). Detox costs \$2,200 on average and 17% remain sober after five years (Juergens, 2019). Residential treatment costs \$3,100 and 21% remain sober after five years (Juergens, 2019). Inpatient treatment costs \$3,200 on average and 21% remain sober after five years (Juergens, 2019).

The Centers for Disease Control and Prevention (2018) reported that the cost of excessive alcohol use in the United States reached \$249 billion in 2010. Seventy-two percent of the costs resulted from losses in workplace productivity, while the remaining 28% were for health care expenses for treatment of problems caused by excessive drinking (11%), law enforcement and other criminal justice expenses (10%) and losses from motor vehicle crashes related to excessive alcohol use (5%). Therefore, the total cost of excessive alcohol consumption was \$69.72 billion (\$249 billion *.28) not including workplace productivity. According to the Office of Management and Budget (2019) the excise tax revenue from alcoholic beverages amounted to \$9.9 billion in 2017, which resulted in a net cost of \$59.82 billion.

Programs	SR	Cost	Cost/SR	CPP	ANB
Medication	20%	\$128	\$640	\$4,800	\$4,160
Alcohol Anon	10%	\$250	\$2,500	\$4,800	\$2,300
Acupuncture	18%	\$675	\$3,750	\$4,800	\$1,050
Outpatient	18%	\$1,200	\$6,666	\$4,800	-\$1,866
Detox	17%	\$2,200	\$12,491	\$4,800	-\$7,691
Residential	21%	\$3,100	\$14,761	\$4,800	-\$9,961
Inpatient	21%	\$3,200	\$15,238	\$4,800	-\$10,438

According to the Substance Abuse Mental Health Service Agency (2017), 14.1 million adults ages 18 and older have alcohol use disorder resulting in a \$4,242 (\$59.82 billion / 14.1 million) per capita cost for excessive alcohol use (not including workplace productivity). It was reported that American's spend on average \$558 per year on alcohol purchases (Bureau of Labor Statistics, 2019). Therefore, the total cost per person (CPP) or savings would be \$4,800 (\$4,242 + \$558). It was found that medication provided the most value treating alcoholism with an annual net benefit (ANB) of \$4,160.

Addiction (smoking)

The average cost for a stop smoking hypnotherapy session is about \$85 per session or \$340 for a four-session stop smoking program (Thompson, 2011). Twenty percent of the participants in the hypnosis group were abstinent at 12 months compared with 14% in the behavioral group (Carmody, 2008). Nicotine gum cost on average about \$4.50 for 10 pieces of gum, the amount most people need to chew daily to control nicotine withdrawal. After three months \$405 (\$4.50 * 90 days), most will be able to begin tapering off the amount of gum they chew (Thompson, 2011). Shiffman (2002) reported that only 8.4% in the over-the-counter nicotine gum group were not smoking at the end of six months. A month's supply of the over-the-counter nicotine patches purchased from an online retailer is about \$80 or roughly \$500 for a six month supply (includes shipping). Shiffman (2002) reported that only 9.2% of those using the over-the-counter patch were not smoking after six months.

A 30-day supply of Chantix from an online retailer costs around \$425 or around \$1,275 for a three-month supply. There is currently no generic version of Chantix. Martin (2019) reported that Chantix had a 22% success rate (SR). A 90 -day supply of a Bupropion from an online retailer costs around \$100. According to Martin (2019) Bupropion has a 16% success rate. The average cost of Nicotrol is \$420 for 168 cartridges, which will last for 28 days if one uses six cartridges per day (Ghosal, 2019) and a six-month supply would cost around \$ 2,500. Nicotine inhalers have an 18% success rate after twelve months (Hialmarson, Nilsson, Sjostrom and Wiklund, 1997). A month's supply of nicotine nasal spray purchased from an online retailer goes for \$150, and a six-month supply could cost as much as \$900. A nicotine mouth spray typically has a 13.6% success rate after one year (Tonnesen, Lauri, Perfect, Mann and Batra, 2012).

The Federal Drug Agency has ruled that lozenges, strips and sticks that contain small pouches of tobacco for the mouth are not smoking cessation aids. There's no evidence that these products can help a person quit smoking, but there is

“A Comparative Expected Value Analysis Study on Complementary and Alternative Medical (CAM) Treatments and Procedures for 12 Common Ailments in the United States”

evidence that oral tobacco products like snuff and chewing tobacco can cause cancer (Cancer.org, 2019).

The average cost of acupuncture as a stop smoking technique ranged from \$50 to \$100 per session. However, this review did not find consistent evidence that acupuncture was an effective smoking cessation technique.

A. laser therapy program costs \$349 and works like acupuncture, but instead of needles, it uses low-level lasers that won't hurt the skin. Studies have yet to confirm that it works (Nazario, 2019).

Programs	SR	Cost	Cost/SR	CPP	Benefit	AP
Bupropion	16%	\$100	\$625	\$3,650	\$3,025	.17
Hypnotism	20%	\$340	\$1,700	\$3,650	\$1,950	.47
Nicotine Gum	8.4%	\$405	\$4,821	\$3,650	-\$1,171	1.32
Patch	9.2%	\$500	\$5,434	\$3,650	-\$1,784	1.49
Chantix	22%	\$1275	\$5,795	\$3,650	-\$2,145	1.59
Nasal Spray	13.6%	\$900	\$6,923	\$3,650	-\$3,273	1.90
Inhaler	28%	\$2500	\$8,928	\$3,650	-\$5,278	2.45
Acupuncture	-	\$75	-	\$3,650	-	-
Strip, stick	-	\$180	-	\$3,650	-	-
Laser Therapy	-	\$349	-	\$3,650	-	-

Annual health care costs for smokers in the United States are \$2,056 higher than for non-smokers (Dallas, 2019) and 34.3 million Americans 18 and older currently smoke in the United States (CDC, 2019). Because smokers are more likely to die at a younger age than non-smokers, annual pension costs were an average \$296 less for each employee who smoked (Dallas, 2019). According to the Office of Management and Budget (2019) the excise tax revenue from tobacco amounted to \$13.8 billion in 2017 or about \$402 (\$13.8 billion / 34.3 million) per smoker. A pack-a-day habit costs \$188 per month or \$2,292 per year (CDC, 2019). Therefore, the cost per person (CPP) or savings would be \$ 3,650 { \$2,056 + \$ 2,292 } - (\$296 + \$402)}. It was found that medication provided the most value reducing the prevalence of smoking with an annual payback (AP) of .17 or about 2 months (365*.17= 62 days).

Anxiety, Depression and Stress

Acupressure provided relief for people experiencing anxiety (Au, 2015). It was also found that acupressure 3 times per week for a month was able to reduce anxiety, for dialysis patients (Hmwe, 2015). Yoga has been found to have improved mental health and reduce anxiety (Ross, 2014). Homeopathy was not found to be effective treating of anxiety (Paris, 2012). Reflexology has been found to reduce anxiety in cardiovascular disease patients (Bahrami, 2019).

Acupressure 3 times per week (\$225) for a month was able to reduce depression for dialysis patients (Hmwe, 2015). Yoga, which can cost nothing, reduced prevalence of depression (Hagins, 2013) and was found to reduce stress

levels (Ross, 2014). Reflexology (\$60 per session) was found to reduce depression for cardiovascular disease patients (Bahrami, 2019) and reduced stress levels in general (Payrau, 2017). It was also found that acupressure 3 times per week for a month was able to reduce stress for dialysis patients (Hmwe, 2015).

Antidepressants improved symptoms in about 20% of the time (NCBI, 2015) and a generic antidepressant can be purchased for as little as \$4 per month or \$48 per year (Westra, 2010) Psychotherapy for depression is as effective as antidepressant medications during the treatment period (Westra, 2010). However, seeing a psychotherapist costs around \$100 per session, so a six session treatment program spread over three months would cost around \$600, which is about 12 times the annual cost for generic antidepressant medication. Pfeiffer, Heisler, Piette, Rogers and Valenstein (2010) reported no significant difference in depression outcomes between those randomized in a peer support intervention versus cognitive therapy.

The cost to join a weekly support group can cost as little as \$15 per week (\$60 per month) or \$180 (three months). Goyal (2014) reported that mindfulness meditation may be just as effective as medication when it comes to the treatment of depression, and no third-party cost is associated with engaging in mindfulness. Likewise, exercise enhances the action of endorphins circulating throughout the body improving natural immunity and is as effective at reducing mild depression as antidepressant medications (Harvard Health Letter, 2013).

Programs	SR	Cost	Cost/SR	CPP	Benefit	AP
Yoga	20%	\$0	\$0	\$4,382	\$4,382	.00
Exercise	20%	\$0	\$0	\$4,382	\$4,382	.00
Meditation	20%	\$0	\$0	\$4,382	\$4,382	.00
Medication	20%	\$48	\$240	\$4,382	\$4,142	.05
Groups	20%	\$180	\$900	\$4,382	\$3,482	.20
Reflexology	20%	\$360	\$1,800	\$4,382	\$2,582	.59
Therapy	20%	\$600	\$3,000	\$4,382	\$1,382	.68
Acupuncture	20%	\$675	\$3,375	\$4,382	\$1,007	.77

The amount spent to treat depressive disorders in the United States is \$71 billion (Dieleman, Baral & Birger, 2016), and 16.2 million adults in the United States have at least one major depressive episode in a given year (Koskie, 2018) . The cost per person (CPP) for depressive disorders in the United States is \$4,382 per person (\$71 billion / 16.2 million). It was found that yoga, exercise and meditation provided the most value treating mild depression followed by medication, which had an annual payback (AP) of .05. Group therapy, reflexology, psychotherapy as well as acupuncture did provide value in terms of overall healthcare costs with less than a 1-year payback period, but provided less value than yoga, exercise and meditation due to their lower costs and similar success rates.

Arthritis

A variety of herbs and other natural products offer a vast resource for such anti-arthritic agents. However, there is no reliable evidence that they are effective for rheumatoid arthritis (Ducics, et al, 2018). Turmeric and its curcumin-enriched extracts have been often used for treating arthritis. However, there are no systematic reviews and meta-analysis of randomized clinical trials (RCTs) that have been conducted to evaluate the effectiveness (Daily, et al, 2016). There are reports of acupuncture effectiveness. For example, 25 patients meeting the American College of Rheumatology (ACR) criteria were recruited and given 14 sessions of individualized acupuncture treatment for 6 weeks (\$1,050). Improvement in symptoms was assessed for tender joint count; swollen joint count and morning stiffness. After 6 weeks, 44% of the tender joint, 20% of the swollen joint, and 12% of the morning stiffness patients achieved relief (Hyangsook, et al, 2008).

Cancer

Patients who used CAM had a significantly shorter 5 -year survival of 55% compared with 78% among patients who received conventional treatment (Johnson, Park, Gross and Yu, 2018). Five-year cancer survival rates for CAM users and non-users were found as 81.5% and 86.5%, respectively. In other words, CAM did not improve survival rates. As a result, most do not attempt to replace conventional treatment with CAM (Yaskin, Metin & Betual, 2011).

CAM therapies include dietary supplements, mind-body strategies, body manipulation, acupuncture, and alternative medicine systems used in conjunction with conventional anticancer treatments were not found to prolong or shorten survival and the data were mixed regarding whether they improve or patient reduce quality of life (Newhouser, Smith, George, 2018), (Karali, Demirkaya, Sevinir, 2012) and (Yun, Lee, Park, 2013).

Medical treatments like chemo and radiation are proven to fight the cancer, but the side effects can be hard to live with. CAM may help ease some of the side effects. However, CAM has its limits and can harm patients if they give up mainstream medicine for alternative treatments (WebMD, 2020).

A Journal of the National Cancer Institute study found that patients with non-metastatic breast, lung or colorectal cancer who chose CAM had substantially worse survival than patients who received conventional cancer treatments. After a median of five years, patients with breast or colorectal cancer were nearly five times as likely to die if they had used CAM (NCI, 2017).

Lu, et al (2008) reported that massage combined with acupuncture in post-operative cancer patients can improve the depressive mood of cancer patients when used in conjunction with usual care. A short-lived improvement in

tension and anxiety also was found in this study. Reflexology reduced nausea brought on by chemotherapy (Ozdelikara, 2017).

Diabetic Neuropathy

Acupuncture had an effectiveness rate of 83.9% (26/31), while the medication group had an effectiveness rate of 62.1% (18/29) treating diabetic patients with numbness, tingling or pain (Lu, et al, 2016). Toft (2020) reported that over -the -counter medications may be enough to relieve the pain for those in the early stages of diabetic neuropathy.

Programs	SR	Cost (Monthly)	Cost/SR
Medication	62%	\$3	\$4.83
Acupuncture	84%	\$300	\$357

Acupuncture (84%) was found to be more effective than over-the-counter medication (62%), but the cost of acupuncture is 100 times more expensive. Therefore acupressure was not found to provide more value for patients in in the early stages of diabetic neuropathy than over-the-counter medications.

Fibromyalgia

Fibromyalgia symptoms were significantly improved in the acupuncture group compared with the control group during the study period (Martin, et al, 2006). However, aerobic exercise is the best way to treat of fibromyalgia pain and costs nothing. Patients can treat Fibromyalgia symptoms by taking multiple over-the-counter medications that ease aches, boost energy and improve sleep. The over-the-counter medications may not be as effective as acupuncture, but the cost of acupuncture is 100 times more expensive and doesn't provide value for value for most patients suffering from Fibromyalgia.

High Blood Pressure

Yoga is inexpensive and sometimes available for no cost has been found to reduce the prevalence of high blood pressure (Hagins, 2013). Inexpensive over-the-counter medications are also effective at reducing the prevalence of high blood pressure.

Headaches

Most patients in the acupuncture group experienced complete pain from acute attacks of migraine relief 24 hours after treatment and 79.6% of patients did not experience recurrence or intensification of pain (Li, et al, 2009). Pain alleviation was significantly different after the fifth and sixth session of acupuncture, with headache being the most significantly relieved among the diseases (Ahn, et al, 2011). Acupuncture was found to have provided relief for people experiencing tension or chronic headaches (Linde, 2016). However, the \$75 average cost of acupuncture is more than

“A Comparative Expected Value Analysis Study on Complementary and Alternative Medical (CAM) Treatments and Procedures for 12 Common Ailments in the United States”

1,000 times the cost of aspirin or ibuprofen. A \$60 biofeedback session was found to be an effective treatment for headaches (Sesic, 2016). However, the \$75 cost of acupressure and the \$60 cost of biofeedback are more than 1,000 times more expensive than the cost of aspirin or ibuprofen that has similar results. Therefore, it was determined that for patients with lower acuity levels, aspirin or ibuprofen available for just a few cents each provided more value than both acupuncture and biofeedback in the eradication of a headache.

Inflammation

Turmeric was found to have reduced inflammation (He, 2015) and a viable alternative to aspirin or ibuprofen. However, the cost of Turmeric (\$30/120 count) is almost 30 times more than the cost aspirin or ibuprofen (\$4/500 count) if purchased at Walmart. Adjusting one’s diet to reduce inflammation would be the most cost beneficial and healthiest option. Therefore, it was determined that aspirin and ibuprofen available for just a few cents each provided more value than Turmeric in the eradication of inflammation.

Insomnia

Acupressure at \$75 per session provided relief for people experiencing insomnia (Cao, 2009). Aromatherapy improved sleep quality for female nurses working night shifts (Chang, 2017) and was also found to have improved quality of sleep and reduce anxiety for patients with heart disease (Karadag, 2017). Yoga reduced prevalence of insomnia (Hagins, 2013). Shergis, et al (2016) reported that acupuncture was more effective than pharmacotherapy. However, the \$75 average cost of acupuncture and Aromatherapy at \$50 per session is more than 250 times the cost of over-the-counter sleeping aid available for about 20 cents each.

Oral Hygiene

Swishing coconut oil around the mouth to pull out bacteria was found to improve oral hygiene (Shanbhag, 2017). Coconut oil proponents argue that the oil is as effective as fluoride mouthwash, but there is no reliable evidence that it is as effective as fluoride mouthwash. Even if it is as effective, the coconut oil is more expensive resulting in the lower -priced fluoride mouthwash providing more value since it has similar success rates.

The American Dental Association (2012) estimates the average cost for a community to fluoridate its water ranges from 50 cents per year per person in large communities to \$3 per year per person in small communities.

The effectiveness or success rate (SR) of self and professionally applied fluoride and water fluoridation among adults in preventing cavities was 29% and the prevented fraction for water fluoridation was 27% (Griffin, Regnier, Griffin, Huntley (2007) . Professional flossing with

low fluoride exposure reduces risk of cavities by 40% (Hujuel, 2006), which suggests that professional flossing without fluoride reduces the prevalence of cavities by 11% (40% – 29%). Gisselsson (1994) reviewing four studies reported that when there was no fluoride exposure, flossing did not provide value.

Tooth Decay Prevention	SR	Unit Cost	Annual Cost	Expected Cost
Community Fluoridation	27%	\$3	\$3	\$11
Fluoride Mouth wash	45%	\$4	\$16	\$36
Fluoride Toothpaste	27%	\$3	\$12	\$44
Coconut Oil	45%	\$5	\$20	\$45

It was reported that 74.4% of communities in the United States have fluoride in their water (CDC, 2014). Fluoridation was found to be the most effective measure to prevent tooth decay. Fluoride prevents mineral loss in tooth enamel, replaces lost minerals and reduces the ability of bacteria to make acid. According to the National Institute of Dental and Craniofacial Research (2019) economic analysis determined that for every \$1 invested in community fluoridation saves \$38 in treatment costs. Excess amounts of fluoride ingestion could cause fluorosis which affects both the teeth and bones. Moderate amounts of fluoride can lead to dental effects and long-term ingestion of large amounts can cause skeletal problems. Chronic high-level exposure to fluoride can lead to skeletal fluorosis. In skeletal fluorosis, fluoride accumulates in the bone progressively over many years. However, chronic high-level exposure to fluoride is rare (WHO, 2019).

Pain

Acupressure was found to be effective at relieving lower back pain, headaches, and labor pain (Chen, 2014) and treating many types of chronic pain throughout the body and osteoarthritis (Vickers, 2012, 2017). Spa therapy combined with exercise was also found to have reduced low back pain in the long-term (Karagulle, 2015). Studies have confirmed that chiropractic adjustments have been effective improving conditions like neck pain (Bryans, 2014) and low back pain (Goertz, 2018).

After acupuncture, there was a 51% pain reduction in the average pain score in the Immediate Treatment Group and a 62% reduction in pain in the Delayed Treatment Group (Coan, et al, 1980) . In the treatment group, 16 cases were markedly relieved, 12 cases improved, and 4 cases failed, with a total effective rate of 87.5% (Zhang, et al, 2010).

Chen, et al (2016) found that treatment effects of acupuncture compared with non-treatment controls had the highest tendency to yield a positive conclusion (84.3%), compared with non-needle-insertion controls (53.3%)

“A Comparative Expected Value Analysis Study on Complementary and Alternative Medical (CAM) Treatments and Procedures for 12 Common Ailments in the United States”

Thirty-eight, 40, and 41 patients were allocated to the medication, exercise, and acupuncture groups, respectively. No patient underwent surgical treatment during the study period. The physical function score improved significantly in the acupuncture group, but not in the medication and exercise groups (Oka, et al, 2018).

However, the \$75 average cost of acupuncture is more than 1,000 times the cost of aspirin or ibuprofen. Therefore, it was determined that for patients with lower acuity levels, aspirin or ibuprofen available for just a few cents each provided more value than acupuncture in the eradication of a non-chronic pain.

CONCLUSIONS

To be approved by the FDA, a drug has to do better than a placebo in studies. However, a recent study concluded that 85% of new prescription drugs hitting the market are of little or no benefit to patients (Sullivan, 2018). Although advocates of CAM acknowledge that the placebo effect may play a role in the benefits that some receive from alternative therapies, they point out that this does not diminish their validity. After 12 weeks, the Borg scale score after the 6-minute walk test was significantly better in the real acupuncture group compared with the placebo acupuncture group (Suzuki, et al, 2012).

It was found that medication provided more value than CAM when treating alcoholism and provided an annual net benefit (ANB) of \$4,160. It was found that medication provided more value reducing the prevalence of smoking with an annual payback (AP) of .17 or about 2 months ($365 \times .17 = 62$ days) than CAM.

Group therapy, reflexology, psychotherapy as well as acupuncture did provide value in terms of overall healthcare costs with less than a 1-year payback period, but provided less value than yoga, exercise and meditation due to their lower costs and similar success rates when treating anxiety, depression and stress.

Acupuncture, which can be up to 100 times more expensive, was not found to provide more value for patients in the early stages of diabetic neuropathy than over-the-counter medications. The cost of acupuncture which can be up to 100 times more expensive than over-the-counter medication was not found to have provided more for patients suffering from Fibromyalgia.

It was determined that for patients with lower acuity levels, aspirin or ibuprofen available for just a few cents each provided more value than both acupuncture and biofeedback in the eradication of a headache. It was determined that for patients with lower acuity levels, aspirin and ibuprofen available for just a few cents each provided more value than Turmeric in the eradication of inflammation. The average cost of acupuncture and aromatherapy per session is more

than 250 times the cost of an over-the-counter sleeping aid available for about 20 cents each, which had similar effectiveness results.

Coconut oil is more expensive and was found to have provided less value than fluoride mouthwash when it comes to oral hygiene.

It was determined that for patients with lower acuity levels, aspirin or ibuprofen available for just a few cents each provided more value than acupuncture in the eradication of non-chronic pain. NIH (2020) reported that “there is no reliable evidence that homeopathy is effective for any health condition”.

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“A Comparative Expected Value Analysis Study on Complementary and Alternative Medical (CAM) Treatments and Procedures for 12 Common Ailments in the United States”

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