

INTEGRATIVE HEALTH EDUCATION FOR INSOMNIA AMONG
THE OLDER ADULT POPULATION

by

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As members of the DNP Project Committee, we certify that we have read the DNP project prepared by Jonatha B. Leicher, titled Integrative Health Education for Insomnia Among the Older Adult Population and recommend that it be accepted as fulfilling the DNP project requirement for the Degree of Doctor of Nursing Practice.

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Final approval and acceptance of this DNP project is contingent upon the candidate's submission of the final copies of the DNP project to the Graduate College.

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DEDICATION

I dedicate this project to all the older adult population. This project would not have been formed without you. Your uniqueness and different kind/level of needs taught me how to be more understanding, patient, compassionate, sensitive, and empathic. You inspire me with your gentleness and kindness as you try to gracefully navigate your ships called life. Every day, as I see you out in the public actively doing your thing, it warmth my heart and made me smile. Mentally, I would utter, “That’s me when I grow old. That’s how I want to be when I grow old.” Every day, as I see you in the clinical facilities currently needing health care and relying on your health care provider, mentally I would utter, “I wish I will be in the hand of the best health care provider who will empathetically guide and support me in my healing process.” In you, I see nothing but myself in the next few decades. You are me.

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ABSTRACT

Purpose

This quality improvement (QI) project aims to evaluate the healthcare providers' knowledge and intent to use evidenced-based integrative health (IH) education plan for insomnia in older adults at the Cornerstone Long-term Acute Care Hospital in Round Rock, TX.

Background

The American College of Physicians Clinical Practice Guideline (CPG) for chronic insomnia for the adult population contains two recommendations, the use of cognitive-behavioral therapy and a shared-decision-making approach by the clinician and the patient discussing whether pharmacological intervention is warranted in case the CBT was ineffective. This project identifies alternative nonpharmacological approaches in a situation where both the first and second recommendations are not effective, appropriate, or the risks outweighs the benefits.

Methods

The Ottawa Model of Research Use (OMRU) framework inspired by Rogers Diffusion of Innovation theory guided the process of this quality improvement project, which superseded a quantitative descriptive design. This design was utilized to evaluate the healthcare providers' knowledge of evidence-based integrative health nonpharmacological interventions for insomnia. A Google.doc pretest survey link was provided followed by a PowerPoint education presentation about the history, uses, and benefits of acupuncture, aromatherapy, and music therapy for insomnia. A posttest survey link was provided after the presentation to re-assess their knowledge and intent to use IH approaches to their practice. The pretest and posttest survey results were used as a piece of quantifiable information for analysis.

Results

Data collection took place in one evening. Two participants participated in this project presentation, all of which were Caucasian female, registered nurses. Both completed the pretest and posttest surveys. There were score increases seen in knowledge, comfortability, and intent to use acupuncture, aromatherapy, and music therapy as IH approaches to their practice and a clear improvement from pretest survey to posttest survey.

Conclusion

The pretest and posttest surveys revealed positive results of evidence-based IH approaches education presentation to the healthcare providers' knowledge and intent to use to their practice. Future high-quality studies that focus on adapting the IH approaches into the providers' practice would likely lead to the conceptualization of the 3rd recommendation of the existing CPG for insomnia among adults

INTRODUCTION

The Centers for Disease Control and Prevention (CDC) estimated that 50-70 million adults in the United States suffer from sleep disorders, where 50% are older adults (American Sleep Association, 2020; Lopez, 2017). In 2016, Roberts et al. (2018) estimated 49.2 million people in the United States (US) are ≥ 65 years old, and the 2018 Sleep in America poll results found that 44% of the population have a sleep disorder (American Journal of Managed Care [AJMC], 2019). It is expected that the older population will double to about 72 million over the next 25 years and roughly 40-70% suffer from chronic sleep disturbances and 50% are undiagnosed (Miner & Kryger, 2017). The most common reported specific sleep disorder is insomnia, where 10% of adults reported chronic insomnia and 30% of adults reported short-term sleep issues (American Sleep Association [ASA], 2020). The clinical practice guideline for insomnia recommends CBT as the first option and if this fails, the next option is utilizing pharmacological intervention such as benzodiazepines and anxiolytics (Brasure et al., 2016; Wilt et al., 2016). However, most of these drugs are listed in the Beers criteria to avoid due to serious adverse effects (American Geriatrics Society [AGS], 2015).

There are evidence-based nonpharmacological or integrative health (IH) interventions for insomnia. Three interventions are acupuncture, aromatherapy, and music therapy. Acupuncture and the use of aromatherapy, to enhance mood, are thought to originate in ancient Chinese medicine, while the use of aromatherapy to fight the black plague and for medicine and treatment originated in ancient Greece medicine (Foca & Liberto, 2016). The practice of medical music therapy is thought to originate from the ancient Greeks (Tyson, 1982). This DNP quality improvement (QI) project will present how these three integrative health interventions can be

used to reduce insomnia in older adults through the recommendation of the ordering healthcare providers.

Background Knowledge and Significance

Asnis et al. (2016) argued that untreated insomnia can lead to devastating consequences of diminished quality of life, depression, and predisposition to various psychiatric disorders. Moreover, sleep problems can negatively impact daily living activities, poor health status, increased fall risk, and risk for institutionalization (Miner & Kryger, 2017). Hospitalized older patients receive treatments such as medications that are associated with either excessive sleepiness or hypervigilance that can help but at the same time negatively impact sleep (Dean et al., 2017). Daytime drowsiness can stem from sedating medications, nocturia, sleep apnea, chronic medical illness, morning headaches, and confusion (Miner & Kryger, 2017). Additionally, confinement in the hospital predisposes older adults to impaired sleep, contributing to delayed healing and delirium (Dean et al., 2017). A study conducted by Helbig et al. (2013) reveals a significant association between falls and trouble staying asleep among 75 years and older individuals.

Local Problem

The main issue in the older adult population who suffer from insomnia is the lack of awareness and knowledge of integrative health (IH) interventions. From January 23, 2018, up to December 31, 2018, in the Geriatric Post-Acute Specialists Group's electronic medical record of the Cornerstone Long Term Acute Care Hospital (CLTACH), there were 183 patients diagnosed with insomnia. I had personally witnessed providers prescribing medications to promote sleep to the older adult patients who had problems with sleeping. The healthcare providers need to know

that there are alternative evidence-based IH nonpharmacological approaches to manage insomnia that has minimal to zero side effects. By knowing the advantages of evidence-based IH interventions, the healthcare providers can recommend alternative nonpharmacological approaches to older adult patients with insomnia. Giving the older adult patients the freedom to choose between pharmacological interventions and evidence-based IH interventions will enhance the participation and involvement of the patients and healthcare providers in their health care.

Intended Improvement

Project Purpose

This quality improvement (QI) project aimed to evaluate healthcare providers' knowledge and intent to use evidence-based integrative health (IH) education plan for insomnia in older adults at CLTACH. The healthcare providers who choose to participate were provided with education on acupuncture, aromatherapy, and music therapy as alternative approaches in the management of insomnia in older adult patients. Improving the healthcare providers' knowledge on IH approaches can encourage them to offer to older adult patients with insomnia the freedom to explore an alternative approach that may be less costly and has minimal to zero adverse effects.

Project Question

In a long-term acute care hospital in Texas that manages adults 65 years and older, how does an evidence-based IH educational intervention compared to no IH educational intervention affect healthcare providers' knowledge and intent to use integrative approaches to manage insomnia in older adults?

Project Aims

This initiative will encourage the healthcare providers to offer to older adult patients with insomnia the freedom to explore an alternative approach that may be less costly and has minimal to zero adverse effects. This QI project will reduce the skyrocketing health care costs from expensive and inappropriate pharmacological interventions and improve the quality of life in older adults experiencing insomnia. The three project aims of this QI project were as follows:

- Aim 1: Evaluate the healthcare providers' knowledge of evidence-based IH approaches for insomnia in older adults at CLTACH.
- Aim 2: Evaluate the healthcare providers' intent to use evidence-based IH approaches for insomnia in older adults at CLTACH.
- Aim 3: Educate the healthcare providers, who choose to participate, in acupuncture, aromatherapy, and music therapy as alternative approaches to manage insomnia in older adult patients.

Theoretical Framework

Ottawa Model of Research Use (OMRU)

The Ottawa Model of Research Use (OMRU) is the framework that will be utilized in this QI project (Appendix K). In 1998, Logan and Graham (2016) outlined OMRU as a planned action model that offers broad, multifaceted schemes that affect obtaining accurate research findings adapted into practice. The OMRU is both descriptive and prescriptive, where the prescriptive facet revolves around three systematic phases: assessment, monitoring, and evaluation (Logan & Graham, 2016). The OMRU model, guided by Rogers Diffusion of Innovation (DoI) theory, implements the planned innovation and adoption of an IH education

module (Rycroft-Malone & Bucknall, 2016). There are six elements fundamental to the research utilization process: research-informed innovation, potential adopters, practice environment, intervention, adoption, and outcomes (Logan & Graham, 2016). This model has a negative feedback loop mechanism. The system allows going back to the previous phase if a change is deemed necessary to effectively move forward to the next phase.

Assessment

Logan and Graham (2016) suggest that the assessment stage is the methodical sketching of the barriers and supporters of the project's adoption. The three components under the assessment stage are innovation, which is the IH education module; potential adopters, identified as the patients, nurses, and stakeholders; and practice environment, which is the CLTACH. Assessing the three components offers awareness of factors leading to support or barriers to the implementation of an IH education module (Graham & Logan, 2004).

Monitor

The monitor stage has two parts, intervention, and adoption (Logan & Graham, 2016). The intervention part is the active or passive action utilized in raising awareness, education, persuading, and facilitating the adoption of the innovation. The adoption part is the process of applying the innovation, maintaining its use, and adapting as needed (Logan & Graham, 2016).

Evaluation

The evaluation of the outcomes concerning the users is the process of identifying the effects of successful implementation and adoption of the innovation (Logan & Graham, 2016). This is the stage in concluding the outcome of the project.

Literature Synthesis

Evidence Search

Two reports from the clinical practice guidelines (CPG) for insomnia and 10 published articles involving integrative health interventions were reviewed to identify and compare the efficacy of acupuncture, aromatherapy, and music therapy in managing insomnia. Keywords searched were insomnia, older adults, elderly, sleep problems, acupuncture, aromatherapy, music therapy, complementary alternative medicine, and integrative health. Databases searched were MEDLINE, EMBASE, PsychInfo, Cochrane Central Register of Controlled Trials, CINAHL, CENTRAL AMED, and PubMed. The two reports that were reviewed are now what constitute the foundation of CPGs for insomnia. One report by Wilt et al. (2016) utilizes pharmacological intervention while the other report by Brasure et al. (2016) utilizes psychological and behavioral interventions for insomnia. The following 10 published articles on integrative health interventions for insomnia focus on acupuncture, aromatherapy, and music therapy (Appendix J).

Comprehensive Appraisal of Evidence

Acupuncture has been practiced for more than 3000 years and is clinically beneficial to many disorders (Huang et al., 2009). Huang et al. (2009) conveyed that both essential science and clinical studies have discovered the effect acupuncture has on various transmitters and the hormonal aspect that plays a vital role in the higher cortical function, hypothalamic-pituitary-adrenal axis, somatovisceral reflexes, and sleep regulation. In the *Cochrane Database of Systematic Reviews*, Cheuk, Yeung, Chung, and Wong (2012) reported acupuncture promotes a sleep-enhancing effect due to its upregulation effect on gamma-aminobutyric acid (GABA) and

its modulation effect on the autonomic nervous system affecting sympathetic and parasympathetic systems.

Among the published articles reviewed that focused on acupuncture, two were systematic reviews by Shergis et al. (2016) with 30 RCTs = 2363 participants and Cao et al. (2009) with 46 RCTs = 3811 patients and a randomized controlled trial by Guo et al. (2013) with 180 participants. The studies utilized the Pittsburgh Sleep Quality Index (PSQI), a standardized, valid, and reliable tool used to measure sleep quality (Street et al., 2014). All trials utilized acupuncture in the intervention group while the control group utilized pharmacological, no treatment, placebo or sham (needle insertion at wrong points) acupuncture, and herbal therapy. The findings revealed acupuncture is statistically significant compared to placebo or sham and pharmacotherapy (Shergis et al., 2016). The verum (true acupuncture with needles inserted in the skin to specific points and depths on the body) group reported improved vitality and sleep quality, decreased sleepiness, and daytime dysfunction compared to estazolam (benzodiazepine medication) and sham acupuncture group (Guo et al., 2013). The meta-analyses showed acupuncture has a beneficial effect compared to no treatment (MD -3.28, 95% CI -6.10 TO -0.46, $p = 0.02$; 4 trials) (Cao et al., 2009). Also, acupuncture was superior to medications regarding the number of patients with increased total sleep duration for >3 hrs (RR 1.53, 95% CI 1.24-1.88, $p < 0.0001$) (Cao et al., 2009).

Additionally, a qualitative study included exploring how acupuncture clients conceptualize their acupuncturist (Bishop & Lewith, 2016). The study revealed acupuncturists as a technician, wise and gifted healers, and caring professionals. The study identified three prototypical patient-practitioner relationships consumerist, paternalistic, and mutualistic (Bishop

& Lewith, 2016). The common factor that damages the generalizability of the four studies' findings is the exclusion of participants who have other factors contributing to insomnia such as psychological or mental disorders, sleep disorders such as obstructive sleep apnea, or any chemical substance abuse or dependence.

Aromatherapy is one of Europe's traditional folk medical practices during ancient times (Sawamura, 2010). Aromatherapy mainly utilizes essential oils for medical purposes and promotes and maintains health and beauty (Sawamura, 2010). The essential oils used in traditional herbal medicine by many countries thousands of years ago have antidepressant, antioxidant, and antimicrobial properties (Sawamura, 2010). In aromatherapy, essential oils are being used for inhalation, cosmetic preparations, compresses, massages, aromatic baths, and many other uses to alleviate pains and aches and relieve anxiety and depression (Sawamura, 2010). Aromatherapy also has beneficial effects in managing symptoms and diseases (Sawamura, 2010).

Moreover, three published articles were synthesized to investigate the efficacy of aromatherapy on insomnia. The articles consist of a systematic review by Fisser and Pilkington (2012), a cohort study by Takeda et al. (2017) with n =19 participants, and an RCT by Lee et al. (2017) with n =60 participants. The systematic review conducted by Fisser and Pilkington (2012) showed lavender oil aromatherapy offers a small to moderate benefit for insomnia. Takeda et al. (2017) revealed significantly longer sleep time and longest sustained sleep period in the intervention period than in the control group. Lastly, the study conducted by Lee et al. (2017) revealed aromatherapy group exhibited significantly higher sleep quality ($p=0.001$) and

significantly lower perceived stress levels ($p < 0.001$) and depression ($p = 0.049$). The limitation identified in these studies is the lack of larger, high-quality clinical trials.

Duerksen and George (2013) described music therapy as an established healthcare profession that utilizes music as a mode to direct the cognitive, emotional, social, and physical needs of all individuals in the spectrum of life. Music therapy has been proven to meet the needs of children and adults with disabilities or illnesses and improve the quality of life for individuals who are well (Duerksen & George, 2013). In evaluating the efficacy of music therapy for insomnia, three published articles were synthesized: two systematic reviews by Feng et al. (2017) $n = 1339$ and Wang et al. (2013) $n = 557$ participants, and a pilot study (Street et al., 2014) $n = 11$. The studies revealed the efficacy of music therapy as statistically significant ($p = 0.000$) in terms of overall sleep quality than the patients' usual care (Feng et al., 2017). There was significant improvement noted in minutes to sleep, hours of sleep, trouble with wakefulness during the day, and an increase in individual's self-care activities (Street et al., 2014). Moreover, there was improved sleep quality in patients with acute and chronic sleep disorders (Wang et al., 2013). Two limitations were identified, first, having a small sample size of the trials affects the generalizability of the conclusions. Future studies warrant extensive clinical trials with more substantial evidence. Secondly, the personal selection of music for relaxation among the participants affects the validity of the study.

The clinical practice guideline (CPG) for chronic insomnia among adults was derived from the two evidence reports by Brasure et al. (2016) and Wilt et al. (2016). The American College of Physicians (ACP) Board of Regents approved the CPG for insomnia on July 25, 2015 and was released on July 19, 2016. The CPG for insomnia meets the National Guideline

Clearinghouse 2013 (revised) inclusion criteria. The ACP formulated the first recommendation in the CPG for insomnia emphasizing the utilization of cognitive-behavioral therapy (CBT-I) as the primary treatment for adults who suffer from chronic insomnia (Qaseem et al, 2016). The second recommendation is the utilization of a shared-decision-making approach by the clinician and the patient. Here, the clinician and the patient discuss whether it is beneficial for the patient to receive pharmacological intervention in case the CBT-I was ineffective (Qaseem et al., 2016).

Furthermore, the shared-decision-making approach by the clinician and the patient is a great opportunity for the clinician to discuss the evidence-based IH approaches as choices if the pharmacological intervention is not applicable, or its risks outweigh the benefits. In the study conducted by Patel et al. (2017), the physicians acknowledge the importance of obtaining education and training on complementary alternative medicine (CAM) to better accommodate the increasing demand of the patients who, if given the choice, choose the evidence-based IH nonpharmacological interventions. Additionally, in the study conducted by Gragnani et al. (2018), of the 38 residents who participated in the study, 25 completed the experiential learning modules, and 13 completed the standard lectures. Five months after postintervention, the study reveals participants in the experiential modules were more likely to refer the patients to CAM modalities than those who participated in the standard lectures.

Strengths of Evidence

Most of the works of literature study design used in this project were from high-quality studies. Four systematic reviews 149 randomized controlled trials, two systematic reviews and meta-analysis (n=40 RCTs), one systematic review and network meta-analysis (n=1339 patients), two RCTs (n=180 patients), one cohort study (n=19 participants), one qualitative study

(n=35 participants), and pilot study (n=11 participants). Analysis of these high-quality studies in which acupuncture, aromatherapy, or music therapy are utilized in practice demonstrated efficacy in managing the patients who suffer from insomnia. Educating the healthcare providers on the evidence-based IH approaches and encouraging them to offer alternative interventions to the older adults can promote better patient-provider relationship, promotes patient autonomy and compliance, and decrease the skyrocketing healthcare costs for unnecessary pharmacological intervention and laboratory/diagnostic tests. The promising results of the evidence-based IH modalities can make it to be the third recommendation in the CPGs for insomnia.

Weaknesses of Evidence

The nation's database lacks current kinds of literature focusing on the actual application of IH approaches into practice as this has not yet been well-studied and deemed unsafe. The pieces of literature focusing on the IH approaches that are actively used in practice are from foreign facilities and clinics. The American CPG for insomnia is intended for the general adult population and lacked specificity to whether it is for younger adults, middle-aged adults, or older adults. The evidence suggests that there are numerous integrative health (IH) approaches for insomnia; however, this project focuses only on educating the healthcare providers on acupuncture, aromatherapy, and music therapy.

Gaps and Limitations

Future research can focus on the efficacy of IH interventions specifically for the older adult population. The inclusion of this measure and evaluation of the older adult population will protect the validity of future studies. Future studies will promote wide acceptance and influence IH-naive older adults in trying IH approaches as an alternative treatment for insomnia.

METHODS

Project Design

This DNP project used a quantitative descriptive design to evaluate the healthcare providers' knowledge and intent to use evidence-based integrative health (IH) education plans for insomnia in older adults at CLTACH. In quantitative descriptive design, there are variables to manipulate and identify possible relationships among the variables (Polit & Beck, 2012). Quantitative descriptive design aids in elucidating cause-and-effect relationships (Polit & Beck, 2012). A concise pretest and posttest survey with items that were directly related to the project topic were created (Appendix D). This ensured that the participants did not waste their valuable time responding to irrelevant questions. The questionnaire items in the pretest and posttest surveys were carefully constructed to provide results that can serve as accurate representations of the healthcare providers' knowledge on the IH approaches before and after the project presentation and their intent to use the knowledge gained from the presentation to their practice. The selected quantitative descriptive design was the appropriate design for this DNP project as the pretest survey (Appendix F) and posttest survey results (Appendix F) completed by the participants were used as the quantifiable data. A PowerPoint presentation via Zoom was used to present education on IH approaches for insomnia to the healthcare providers (Appendix E). The presentation focused on acupuncture, aromatherapy, and music therapy. The history of its origin, indication, application, and physiological effects in the body was discussed.

Model for Implementation

The Ottawa Model of Implementation was used (Appendix K). The model has three steps. First, the assessment of the barriers and supports, which includes the introduction of the

evidence-based IH approaches (innovation); identifying the potential adopters and their awareness of the benefits of IH education, their attitudes/intentions, knowledge/skill on IH approaches, and concerns of the application; and the practice environment which includes the patients, culture-social beliefs, economic, and uncontrolled events. Second, is the monitoring of the process and the degree of use of the IH interventions and the adoption. Third, is the evaluation of the outcomes.

Setting and Stakeholders

Cornerstone Long Term Acute Care Hospital (CLTACH) is in Round Rock, Texas. CLTACH is one of the Cornerstone Healthcare Group (CHG) facilities. CHG offers services and locations nationwide that include specialty hospitals, senior living, and behavioral health. CLTACH is a specialty acute care hospital accredited by the Center for Improvement in Healthcare Quality (CIHQ). This hospital is designed as a bridge in the continuum of care and is intended to provide intensive, specialized care for medically complex patients that require a longer treatment and recovery period. This hospital provides a committed and knowledgeable clinical team in a setting conducive to healing. CLTACH's goal is to treat the immediate and long-term needs of the patients to help each patient reach the next level of well-being on their path to a full recovery. The CLTACH was the site utilized for this quality improvement project. The student obtained site approval from the chief executive officer (CEO) to authorize to conduct the QI project with their healthcare providers (Appendix A). This QI project's participants were the stakeholders of the CLTACH consisting of the physicians (MDs), physician assistants (PAs), nurse practitioners (NPs), nurses (RNs), and nursing assistants (NAs). The student enlisted the help of the house supervisor in the stakeholder buy-in. The chief nursing

officer (CNO) helped in recruiting the stakeholders to participate in the student's IH education presentation.

Planning the Intervention

An evidence-based IH education PowerPoint presentation was prepared (Appendix E). During the project presentation, on the very first page was the disclosure form (Appendix B) followed by demographic form (Appendix D) that the participants completed online before the Zoom project presentation (Appendix E). Before the PowerPoint education presentation (Appendix E), a pretest survey designed to evaluate the healthcare providers' knowledge on IH approaches for insomnia in older adults was administered (Appendix D). The PowerPoint presentation was a 10-15-minute presentation of acupuncture, aromatherapy, and music therapy (Appendix E). This project presentation was conducted on two evenings at 2100. Afterward, a posttest survey was given to evaluate the healthcare providers' knowledge and intent to use IH approaches for insomnia in older adults (Appendix D). The data was analyzed and transferred the results to the pretest (Appendix F) and posttest tables (Appendix F). In addition to the tables, bar graphs were drafted serving as a visual representation of the results, comparing the results between the pretest and posttest surveys (Appendix G), or tracking changes before and after the presentation. The PowerPoint presentation (Appendix E) used evidence-based kinds of literature and reliable sources including the clinical practice guideline by the American College of Physicians, American Geriatrics Society, American Sleep Association, Centers for Disease Control and Prevention, American Psychological Association, and the US Department of Commerce Economics and Statistics.

Participants and Recruitment

The inclusion criteria for this QI project were currently employed healthcare providers at Cornerstone Long Term Acute Care Hospital (CLTACH), who provided care directly to the patients such as the physicians (MDs), physician assistants (PAs), nurse practitioners (NPs), nurses (RNs), and certified nursing assistants (CNAs). The CLTACH's lead house supervisor, Ms. Melissa Taft, BSN, RN, served as the contact person responsible for the recruitment of the participants. The CLTACH participants were recruited via email invitation (Appendix C). The content of the email included a collage photo of the IH approaches and title and the steps such as the presentation of the disclosure form (Appendix B), filling out via online Google-Form of demographics (Appendix D), a pretest (Appendix D), and posttest surveys (Appendix D) with estimated time on each step, announcing of the \$20 Amazon gift card incentive, and the date and time of the presentation. There were at least five participants expected to participate in the project.

Consent and Ethical Considerations

Respect for persons, beneficence, and justice are the three vital principles that apply to any project involving human subjects. This study requires these principles as essential components as they aid in ensuring that each participant receives fair, safe, and ethical treatment. This QI project received approval from the University of Arizona's IRB.

Respect for Persons

The U.S. Department of Health and Human Services (USDHHS) (1979) laid out two components of the ethical principle and that is ensuring the participant's autonomy and protecting those with diminished autonomy. As the individual matures, the need for autonomy

increases. Individuals mature and so does their capacity of autonomy (USDHHS, 1979). However, individuals should have the right to autonomy and make decisions for themselves (Polit & Beck, 2012). The participants should have the freedom of choice whether to participate or not in a study without being coerced or pressured. They possess the right to ask questions, withhold information, and withdraw from the study (Polit & Beck, 2012). The QI project leader must ensure participants understand the essence of the project and provide them with vast information necessary for their decision-making process (USDHHS, 1979; Polit & Beck, 2012). The participants in this QI project are the stakeholders of CLTACH. As the author of this project, I must maintain the participants' rights to autonomy and freedom of choice. It is important to present the nature of my study to the participants with clarity and transparency. Among the participants, there is no one identified as having a disability or special needs. The participants will be educated on their rights to refuse information or withdraw from the study and will be aware of the project's benefits and risks.

Beneficence

The American Nurses Association (ANA) (2011) describes beneficence as the ethical principle that deals with an individual's desire to do good and have compassion. The main responsibility of the QI project leader is to ensure that the benefits outweigh the harm (USDHHS, 1979; Polit & Beck, 2012). During the investigation, the QI project leader needs to lay out how the benefits will outweigh the risk (USDHHS, 1979; Polit & Beck, 2012). Beneficence plays a vital role in my QI project because the outcomes will be used to maximize the health benefits of older adults. This QI project benefits have the potential to impact the older adult population who suffer from insomnia or sleep problems. There is no physical harm

identified in the process of conducting this QI project. This QI project includes education on ensuring ways to minimize the potential for any harm and consequences that may come along such as skin breakdown, lesions, or wounds for acupuncture, certain allergies to essential oils that will be used in aromatherapy, and sensitivity to music.

Justice

Justice is an ethical concept that lies at the core of nursing and is used to guide an individual's actions in promoting respect, fairness, and equality (Woods, 2011). During the project, it is vital among participants to maintain their privacy and equal treatment rights (Polit & Beck, 2012). The QI project leader must ensure fairness and equality towards the participants, and not be discriminated against despite their decision to leave the study group or refuse to answer study questions (USDHHS, 1979; Polit & Beck, 2012). When conducting this QI project, it is vital to treat all participants equally, provide clarification, and respect. The participants' confidentiality and privacy will strictly be maintained at all times. Informed consent was obtained and ensured that the participants understand their right to privacy by allowing them to ask questions regarding confidentiality and privacy. Lastly, my contact details were provided in case the participants have concerns and questions and need to contact me any time before or after the project.

Data Collection

Online Google-Form links for demographic, pretest, and posttest forms (Appendix D) were provided in Zoom's chat textbox during the presentation (Appendix E). On the very first page of the presentation, the disclosure form was presented (Appendix B) followed by filling out the demographic, the pretest survey, and the posttest survey after the PowerPoint presentation.

The demographic data was a major part of the survey used to compare subgroups and to determine whether the differences that exist influenced the participants' responses to the survey questions. The demographic data is essentially important because acupuncture, aromatherapy, and music therapy may be influenced by the individual's race, ethnic background, gender, and age ("Middle-aged adults," 2007). After the PowerPoint education presentation, the participants filled out a posttest survey to evaluate their knowledge and intent to use IH approaches for insomnia.

Data Analysis

The demographic data were analyzed by comparing the participants according to their current profession, years in their job position, age, gender, and race. The survey data was analyzed by transferring the results to pretest (Appendix F) and posttest tables (Appendix F). Pretest and posttest question were analyzed and compared to evaluate the outcome of the IH education presented to the participants. Except for one question in the pretest and posttest survey, each question used a four-point Likert scale with categories: 1 = no knowledge/likely, 2 = minimal/somewhat likely, 3 = moderate/likely, and 4 = superior/very likely. The pretest question #7 for the current IH approach/es used in their practice used letter codes "AC" for acupuncture, "AR" for aromatherapy, "MU" for music therapy, and/or "N" for none. The posttest question #8, the culminating question, used a dichotomous scale, "1" for 'yes' or "0" for 'no'.

RESULTS

Outcomes

There were no participants on the first evening of the scheduled project presentation on November 29, 2021. Two participants participated in this project presentation on November 30,

2021. The two participants' professional title that they currently held is registered nurse (RN) 100% (n=2); number of years in their job position ranged from 3-5 years, 50% (n=1), 6-10 years, 50% (n=1); age of the participants 41-50 years old, 100% (n=2); all participants were female 100% (n=2), and Caucasian 100% (n=2). In the pretest and posttest surveys, questions 1-3 assessed the participant's knowledge of acupuncture, aromatherapy, and music therapy in managing insomnia. On the knowledge of acupuncture in managing insomnia, participant 1 responded on the pretest = 1/posttest = 3, while participant 2 responded on the pretest = 2/posttest = 4. On the knowledge of aromatherapy in managing insomnia, participant 1 responded on the pretest = 2/posttest = 3, while participant 2 responded on the pretest = 2/posttest = 4. On the knowledge of music therapy, participant 1 responded on the pretest = 2/posttest = 2, while participant 2 responded on the pretest = 3/posttest = 3. The pretest and posttest questions 4-6 assessed the participants' level of comfort in recommending acupuncture, aromatherapy, and music therapy to their patients. On the level of comfort in recommending acupuncture, participant 1 responded on the pretest = 1/posttest = 3, while participant 2 pretest = 1/posttest = 4. On the level of comfort in recommending aromatherapy, participant 1 pretest = 2/posttest = 4, while participant 2 pretest = 1/posttest = 4. On the level of comfort in recommending music therapy, participant 1 pretest = 2/posttest = 4, while participant 2 pretest = 1/posttest = 4. One question in the pretest and posttest surveys assessed the likelihood of the participants in recommending the IH approaches to the older adult patients who suffer from insomnia with participant 1 pretest = 3/posttest = 4, while participant 2 pretest = 4/posttest = 4. One question in the pretest survey identified if one or more, or all the IH approaches is/are currently being used in their practice with both the participants responding N = none. The

culminating question in the posttest survey identified the participants' intent to apply the knowledge gained during the presentation into their practice was 100% (Appendix G).

DISCUSSION

Summary

The goal of this project was to investigate how evidence-based integrative health (IH) educational intervention compared to no IH education intervention affects the healthcare providers' knowledge and intent to use IH approaches to manage insomnia in older adults. The pretest survey was a vital part of the study as it provided their baseline knowledge on acupuncture, aromatherapy, and music therapy; their level of comfortability in recommending the alternative approaches; identifying the IH approach/es currently being used in their practice; and the likelihood of recommending the IH approaches to the older adult patients who suffer from insomnia. On the pretest survey, before the presentation, the healthcare providers revealed an inherent favor of the IH approaches by expressing willingness to offer IH approaches for insomnia to older adults. To examine the outcome of the IH educational intervention, the participants were encouraged to fill out a posttest survey following the presentation. The culminating question of the participants' intent to use IH approaches in their practice revealed a likelihood of 100%. This promising result could be attributable to the IH approaches' interesting historical existence dated many centuries ago, its artistic and unique way of application, efficacy, portability, and for its known minimal to zero side effects. Or it could be purely rooted in the providers' instantaneous developed interest during the presentation.

It is essential to evaluate the participants' knowledge and intent to use acupuncture, aromatherapy, and music therapy before and after the PowerPoint education presentation. Aim 1,

evaluating providers' knowledge, was met by a pretest survey containing questions designed to measure how much knowledge they have on acupuncture, aromatherapy, and music therapy. Each question was designed to explore their existing knowledge by rating each of the three specific IH alternative approaches. Following the presentation, a posttest survey with questions identical to the pretest survey was conducted where the participants rate their knowledge on each of the IH alternative approaches. Aim 2, evaluating the participants' intent to use the IH alternative approaches, was met by pretest and posttest conducted rating their comfort level and their intent to use IH approaches to their practice. Aim 3, educating the healthcare providers' on IH approaches, was met by a PowerPoint education presentation on evidence-based IH alternative approaches. Evidence-based literatures focusing on acupuncture, aromatherapy, and music therapy were explored and critically appraised ensuring the participants were educated with IH alternative approaches utilizing the best evidence for practice. The Ottawa Model of Research Use (OMRU) framework inspired by Rogers Diffusion of Innovation (DoI) theory was utilized in translating the research into practice following a systematic approach from planning to dissemination and integration of new knowledge into practice. This QI project used information systems/technology such as email correspondence for communicating with the people and participants involved in this project; Google Doc and Google Sheets for obtaining the demographics, pretest, and posttest surveys; Zoom videoconference for presenting the evidence-based IH education; and Amazon links for transmitting the cash gift certificates to those who participated in this project.

The result of this QI project signifies the importance of empowering the healthcare providers with knowledge on the IH approaches so they can educate and discuss with their

patients the alternative approaches in managing insomnia in a situation where CBT and/or pharmacological intervention is not appropriate, or the risks outweighs the benefits. According to Bishop et al. (2016), a patient-practitioner mutualistic relationship means both the practitioner and the patient bring expertise and significant resources to the process, discuss plans and decisions. The Duke University Medical Center Library and the Health Sciences Library (2014) conveyed evidence-based practice constitutes three essential components that link together: evidence-based practice, health care provider's expertise, and patient's preference to achieve better outcomes, of which this project was trying to achieve. The study conducted by Ng et al. (2021) reported that while some patients who suffer from insomnia are currently using complementary alternative medicine (CAM) therapies, conventional healthcare providers commonly lack training or education regarding CAM leading to the development of a gap. The lack of knowledge on IH approaches can negatively impact the communication between healthcare providers and patients. This project will fill in the gap enhancing the patient-provider relationship and developing mutualism to achieve better patient outcomes.

Additionally, the study conducted by Sayner et al. (2017) focused on the needs of healthcare providers towards complementary and alternative medicine (CAM). They have discovered that healthcare providers are eager to learn and be trained on the IH approaches for insomnia with the hopes of being able to better serve their patients by offering them alternative approaches for insomnia. The healthcare providers are the patients' direct source of knowledge; therefore, as patient advocates, educating the patients on the IH approaches is essential in managing insomnia (Sayner et al., 2017). In many states such as in California, CAM interventions such as acupuncture, aromatherapy, yoga are currently considered as "essential

health benefits” and the therapists are considered part of the covered healthcare workforce (Hao & Mittelman, 2014). Moreover, Hao et al. (2014) reported “Non-discrimination in Health Care” language of the Affordable Care Act (ACA) is one of the reassuring proofs of the future of integrative health modalities in the United States (US). This indicates the need for healthcare providers to be equipped with knowledge on IH approaches in preparation for the future integration of CAM into practice.

A limitation identified in this QI project was that the CPG focused only on insomnia among older adult patients in an acute care setting. Therefore, more research regarding IH approaches should be conducted in the older adult population in different level of care settings. This project aimed to raise awareness on how CPGs for insomnia create an ethical dilemma for the health care providers that could lead to mental and emotional stress. If not being addressed, this negatively impacts the quality of care that the healthcare providers provide and the quality of life of the older adults suffering from insomnia.

Implications (Practice, Education, Research and Policy)

Practice

Empowering the healthcare providers with knowledge on IH approaches for insomnia opens an alternative pathway in managing the illness. The second recommendation of the CPG for insomnia is the shared-decision making discussion about the pharmacological intervention option. This is an opportunity for the provider to educate the patient regarding the benefits of IH approaches. As healthcare providers, offering the older adult patients who suffer from insomnia the freedom of choice for alternative nonpharmacological IH approaches will give them a sense of autonomy and promotes compliance. This will enhance the patient-provider relationship. This

also prevents the possible mental and emotional stress on the healthcare providers due to the ethical dilemma that they will encounter. This project demonstrated that the evidence-based IH educational intervention has a substantial, favorable impact on the healthcare providers' knowledge and intent to use integrative approaches to manage insomnia in older adults.

Moreover, the use of aromatic oils in clinical aromatherapy has been proven effective in managing insomnia, depression, anxiety, stress, pain, nausea, vomiting, cancer pain, agitation with dementia, and even end-of-life symptoms (Farrar & Farrar, 2020). However, it is important to note that aromatic essential oils can be dangerous and toxic putting the patient's safety at risk (Farrar & Farrar, 2020).

Reported music can alleviate discomfort and improve sleep problems (Loewy, 2020). However, it is important to assess and evaluate whether the patient's cause of sleeping problems is due to trauma, disease, medication side effect, anxiety, and all other factors that disrupt sleep. Additionally, Loewy (2020) reported prescribing music and providing music therapy requires knowledge and consultation with the professionals who have analyzed complexity and musical idioms and have analyzed genre.

Education

This QI project revealed IH approaches as something that healthcare providers are willing to use in their practice. The brief IH education presentation presented to the participants had a positive impact on the participants as evidenced by the 100% response of their intent to use the alternative approaches to their practice. Empowering the healthcare providers with further knowledge on the IH approaches is of utmost benefit not only to them but to the recipient of the intervention – the patients. It is vital that the IH approaches be included in the curriculum in all

health-related courses and perhaps investigates which healthcare provider role is well-suited to appropriately conduct in-person interventions to the patients. Knowledge in IH approaches is crucial in revolutionizing the existing policy on the clinical practice guidelines (CPGs) for insomnia in adults. The healthcare providers must be empowered and ready to implement the interventions when the time comes that the IH approaches will be incorporated into the healthcare practice.

Research

There are overwhelming pieces of literature from high-quality studies dated from many years ago that validate the efficacy of the IH approaches. However, there is an inconsiderable number of studies that focus on IH approaches being integrated into practice and zero studies incorporated into the CPG for insomnia in adults. Additionally, further research and studies that focus on the actual implementation of IH approaches are warranted to explore how the recipients respond to the IH interventions. The promising results of the future studies will give the IH approaches the potential to be the third recommendation of the existing CPG for insomnia.

Policy

The acupuncture, aromatherapy, and music therapy modalities that originated back many centuries ago are being used in hospitals and clinics or private practices, especially in the countries of origin and their neighboring countries. In America, the IH approaches are not being used in practice in the facilities despite their proven efficacy. The healthcare leaders, who have the power to change a policy, should look back and reflect on how our ancestral patient advocates managed insomnia using IH modalities that they introduced and adopted from different countries. More high-quality research studies, compassionate healthcare patient

advocates, and effective healthcare leaders are needed for the IH approaches to be legally incorporated into the clinical practice. Based on the existing studies on IH approaches for insomnia, this initiative will reduce the skyrocketing healthcare cost from unnecessary diagnostic, laboratory tests, pharmacological interventions, and complications of insomnia. Most importantly, this QI project will offer older adults the freedom to choose IH approaches in combating insomnia and enhancing their quality of life.

Limitations

The first limitation identified in this QI project was the very small sample size. The limited number of participants does not represent the general population affecting the project's generalizability. Secondly, the participants were both females which prevented this author to identify if gender differences may have influenced the result; thus, resulting in a bias. The post-Thanksgiving holiday timing and evening hours could have possibly influenced the participants' lack of interest in participating. The invitation to participate was emailed as an attachment which could have raised suspicion among the recipients as they may have thought it was a phishing email. This QI project was supposed to be conducted in person but due to the existing COVID-19 pandemic and the resulting facility's limited in-person contact, the setting was modified to be online. All these possible contributing factors negatively impacted the healthcare providers' willingness to participate.

DNP Essentials Addressed

DNP Essential III: Clinical Scholarship and Analytical Methods for Evidence-Based Practice

DNP Essential III was addressed in developing this QI project. The focus of this project namely acupuncture, aromatherapy, and music therapy are all evidence-based. This author applied evidence-based practice in developing this QI project in the clinical setting using synthesized works of literature from high-quality studies that were based on the Ottawa Model of Research Use (OMRU) framework inspired by Rogers Diffusion of Innovation (DoI) theory (Logan & Graham, 2016; Rycroft-Malone & Bucknall, 2016). This author constructed an evidence-based IH education PowerPoint presentation using factual information from the pieces of literature and surveys based upon the steps of OMRU as these were proven invaluable in earlier practices.

DNP Essential IV: Information Systems/Technology and Patient Care Technology for the Improvement and Transformation of Health Care

DNP Essential IV was addressed using information technology such as communicating with the facility and the main contact personnel who were invited to participate through electronic mail correspondence. This QI project PowerPoint presentation was conducted through Zoom online conference. The participants filled out the demographics, pretest survey, and posttest survey through the Google Forms link provided in the text box of the Zoom application.

Conclusions

Plan for Sustainability

Potential adopters need to be aware of the benefits of IH approaches for insomnia. Evidence-based IH approaches for insomnia are affordable, portable, and have minimal to zero side effects. Monthly meetings to reinforce the knowledge of these IH approaches and allow for questions may encourage continued use. During patient rounding, the clinician can evaluate the patient's response to the intervention and encourage the patient to raise questions and/or feedback so that the issue can be promptly addressed. Lastly, periodic evaluation of the outcome of the innovation is important to maintain sustainability.

Plan for Dissemination

The dissemination of this QI project findings to the clinical site is essential so that the healthcare providers will be aware of the benefits the IH approaches have to the patients and the healthcare industry in general. This QI project findings, including recommendations for sustainability, will be transmitted through electronic mail (email) to the facility's chief QI officer.

APPENDIX A:

SITE APPROVAL LETTER / THE UNIVERSITY OF ARIZONA INSTITUTIONAL REVIEW
BOARD LETTER



The Institutional Review Board
The University of Arizona
Research, Innovation & Impact
1401 E. University Blvd
Administration Bldg., Rm 601
Tucson, AZ 85721

I am Brant Robinson, MPT, Chief Executive Officer at the Cornerstone Specialty Hospital at 4681 College Park Drive, Round Rock, TX 78665. The principal investigator, Jonatha Leicher, with her project entitled Integrative Health Education for Insomnia Among the Older Adult Population, will present an education plan for the older adults experiencing insomnia to the stakeholders of Cornerstone Long Term Acute Care Hospital (CLTACH). I confirm that the approach to recruitment, the method and timing for obtaining consent, and data collection activities are appropriate for the setting and the study participants. I confirm that additional local review is not required and any other local requirement have been met. I confirm that the research plan does not require physical contact with the older adult patients and does not expose study participants to unnecessary risk.

A handwritten signature in black ink, appearing to read 'BR' with a stylized flourish.

Brant Robinson, MPT
Chief Executive Officer
Cornerstone Hospital of Round Rock
4681 College Park Drive
Round Rock, TX 78665

5/29/2020

Date



845 N Park Ave., Suite 537A
Tucson, AZ 85719
Fax: 520-621-9810
VPR-IRB@arizona.edu

NOT HUMAN RESEARCH

November 12, 2021

Jonatha Leicher

Dear Jonatha Leicher:

On 11/12/2021, the IRB reviewed the following submission:

Type of Review:	Initial Study
Title:	INTEGRATIVE HEALTH EDUCATION FOR INSOMNIA AMONG THE OLDER ADULT POPULATION
Investigator:	Jonatha Leicher
IRB ID:	STUDY00000425
Sponsor:	None
Prime Sponsor:	None
IND, IDE, or HDE:	None
Documents Reviewed:	<ul style="list-style-type: none"> • Advisor Attestation, Category: Institutional Approval; • Invitation to Participate, Category: Recruitment Materials; • IRB Determination Final.docx, Category: IRB Protocol; • PowerPoint Presentation, Category: Recruitment Materials; • PowerPoint Presentation, Category: Participant Material; • Site Authorization.docx, Category: Consent Form;

The IRB determined that the proposed activity is not research involving human subjects as defined by DHHS and FDA regulations.

IRB review and approval by this organization is not required. This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these activities are research involving humans in which the organization is engaged, please



845 N Park Ave., Suite 537A
Tucson, AZ 85719
Fax: 520-621-9810
VPR-IRB@arizona.edu

submit a new request to the IRB for a determination. You can create a modification by clicking **Create Modification / CR** within the study.

We value your feedback and would appreciate you taking the time to complete our survey about your experience with the IRB staff:

http://uarizona.col.qualtrics.com/jfe/form/SV_dgQSVxqciPhiiUd

If questions arise at any time during your study, please email the general IRB inbox at VPR-IRB@arizona.edu.

APPENDIX B:
CONSENT DOCUMENT (DISCLOSURE AND CONSENT FORM)

INTEGRATIVE HEALTH EDUCATION FOR INSOMNIA AMONG THE OLDER ADULT POPULATION

JONATHA LEICHER

The purpose of this project is to evaluate the healthcare providers' knowledge and intent to use an evidence-based integrative health (IH) education plan for insomnia in older adult patients at Cornerstone Long Term Acute Care Hospital.

If you choose to take part in this project, you will be asked to fill up an online demographic form, pre-test form, attend the Zoom conference PowerPoint presentation on integrative health approaches for older adult patients suffering from insomnia, then there will be a post-test survey at the end. It will take approximately 15-20 minutes from filling up demographic form up to the post-test survey. There are no foreseeable risks associated with participating in this project. You will receive no immediate benefit from your participation. Your responses are anonymous. Your name will not be collected or linked to your answers.

If you choose to participate in the project, participation is voluntary, refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled. You may withdraw at any time from the project. In addition, you may skip any question that you choose not to answer. By participating, you do not give up any personal legal rights you may have as a participant in this project.

For questions, concerns, or complaints about the project, you may call

Jonatha Leicher RN, BSN
DNP – AGACNP Graduate Student
jonaleicher@gmail.com / (512) 840-9788

You agree to have your responses used for this project.

APPENDIX C:
RECRUITMENT MATERIAL (RECRUITMENT FLYER AND ZOOM LINKS)

Invitation to Participate!



Evidence-Based Integrative Health Education for Healthcare Providers

- Disclosure Form presentation (first page)
 - Participants will:
 - Fill out via online Google-form: a Demographic Form and a 6-item pre-integrative health education survey (2-3 mins).
 - Sit down for a quick 10-15-minute online PowerPoint presentation on evidence-based integrative health management for insomnia. The PowerPoint presentation includes:
 - Background of the problem surrounding insomnia among the older adult population
 - Short video clips that focus on acupuncture, aroma therapy, and music therapy.
 - Literature synthesis
 - Then there will be 6-item post-integrative health education survey (1-2 mins).
 - Total estimated time for conducting this project is **15-20 minutes**.
 - After the presentation, a self-funded \$20 Amazon gift card incentive link will be emailed to those who participated.
-

Select one:

11/29/21: 9:00 – 9:20PM

Join Zoom Meeting

<https://arizona.zoom.us/j/83402062366>

Meeting ID: 834 0206 2366

Passcode: 703197

11/30/21: 9:00 – 9:20PM

Join Zoom Meeting

<https://arizona.zoom.us/j/7084677608>

Meeting ID: 708 467 7608

Passcode: 7ce1ML

APPENDIX D:
EVALUATION INSTRUMENTS (DEMOGRAPHICS FORM, PRETEST SURVEY AND
POSTTEST SURVEY)

Demographics

Untitled Section

1. What professional title you are currently holding?

Check all that apply.

- Physician
 Physician Assistant
 Nurse Practitioner
 Registered Nurse
 Nursing Assistant
 Other

Other: _____

2. How many years have you been in your job position?

Check all that apply.

- 0 – 2 years
 3 – 5 years
 6 – 10 years
 11 – 20 years
 21 - 30 years
 31 years – above

Other: _____

3. What is your age?

Check all that apply.

- Under 30 years old
- 31 – 40 years old
- 41 – 50 years old
- 51 – 60 years old
- Over 60 years old

Other: _____

4. What is your gender?

Check all that apply.

- Female
- Male

Other: _____

5. What is your race?

Check all that apply.

- Caucasian
- African-American
- Asian
- Hispanic
- Other

Other: _____

This content is neither created nor endorsed by Google.

Google Forms

Pre-Test Survey

Integrative Health Management for Insomnia Education

There are three integrative health (IH) approaches for the management of insomnia among older adults in CLTACH. These approaches are acupuncture, aromatherapy, and music therapy.

1. Q1 How would you rate your knowledge of acupuncture to manage insomnia?

Check all that apply.

	1 = No knowledge	2 = Minimal	3 = Moderate	4 = Superior
Check one	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. Q2 How would you rate your knowledge of aromatherapy to manage insomnia?

Check all that apply.

	1 = No knowledge	2 = Minimal	3 = Moderate	4 = Superior
Check one	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. Q3 How would you rate your knowledge of music therapy to manage insomnia?

Check all that apply.

	1 = No knowledge	2 = Minimal	3 = Moderate	4 = Superior
Check one	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. Q4 How would you rate your comfort in recommending these IH approaches? (A)
ACUPUNCTURE

Check all that apply.

	1 = No knowledge	2 = Minimal	3 = Moderate	4 = Superior
Check one	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. (B) AROMATHERAPY

Check all that apply.

	1 = No knowledge	2 = Minimal	3 = Moderate	4 = Superior
Check one	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. (C) MUSIC THERAPY

Check all that apply.

	1 = No knowledge	2 = Minimal	3 = Moderate	4 = Superior
Check one	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. Q5 What IH approaches do you currently use in practice?

Check all that apply.

- 0 = None
- 1 = Acupuncture
- 2 = Aromatherapy
- 3 = Music Therapy

8. Q6 How likely are you to recommend these integrative approaches?

Check all that apply.

1 = Not likely 2 = Somewhat likely 3 = Likely 4 = Very likely

Check one

This content is neither created nor endorsed by Google.

Google Forms

Post-Test Survey

Integrative Health Management for Insomnia Education

There are three integrative health (IH) approaches for the management of insomnia among older adults in CLTACH. These approaches are acupuncture, aromatherapy, and music therapy.

1. Q1 How would you rate your knowledge of acupuncture to manage insomnia?

Check all that apply.

	1 = No knowledge	2 = Minimal	3 = Moderate	4 = Superior
Check one	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. Q2 How would you rate your knowledge of aromatherapy to manage insomnia?

Check all that apply.

	1 = No knowledge	2 = Minimal	3 = Moderate	4 = Superior
Check one	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. Q3 How would you rate your knowledge of music therapy to manage insomnia?

Check all that apply.

	1 = No knowledge	2 = Minimal	3 = Moderate	4 = Superior
Check one	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. Q4 How would you rate your comfort in recommending these IH approaches? Q4:
(A) ACUPUNCTURE

Check all that apply.

	1 = No knowledge	2 = Minimal	3 = Moderate	4 = Superior
Check one	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. Q4: (B) AROMATHERAPY

Check all that apply.

	1 = No knowledge	2 = Minimal	3 = Moderate	4 = Superior
Check one	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. Q4: (C) MUSIC THERAPY

Check all that apply.

	1 = No knowledge	2 = Minimal	3 = Moderate	4 = Superior
Check one	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. Q5 How likely are you to recommend these integrative approaches?

Check all that apply.

	1 = Not likely	2 = Somewhat likely	3 = Likely	4 = Very likely
Check one	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. Q6: (A) I intend to apply the knowledge gained during the presentation to my practice?

Check all that apply.

0 = No 1 = Yes

Check one

9. Q6: (B) If not, why?

This content is neither created nor endorsed by Google.

Google Forms

APPENDIX E:
PARTICIPANT MATERIAL (POWERPOINT PRESENTATION)

APPENDIX F:
PRETEST AND POSTTEST SURVEY RESULTS

Pretest Survey Results

Integrative Health Management for Insomnia Education

There are three integrative health (IH) approaches for the management of insomnia among older adults in CLTACH. These approaches are acupuncture, aromatherapy, and music therapy.

Question	Participant 1	Participant 2
1) From a scale of 1 as no knowledge to 4 as superior knowledge, how would you rate your knowledge of acupuncture to manage insomnia?	1	2
2) From a scale of 1 as no knowledge to 4 as superior knowledge, how would you rate your knowledge of aromatherapy to manage insomnia?	2	2
3) From a scale of 1 as no knowledge to 4 as superior knowledge, how would you rate your knowledge of music therapy to manage insomnia?	2	3
4) From a scale of 1 as not comfortable to 4 as very comfortable, how would you rate your comfort in recommending acupuncture?	1	1
5) From a scale of 1 as not comfortable to 4 as very comfortable, how would you rate your comfort in recommending aromatherapy?	2	1
6) From a scale of 1 as not comfortable to 4 as very comfortable, how would you rate your comfort in recommending music therapy?	2	1
7) From a scale of 1 as not likely to 4 as very likely, how likely are you to recommend these integrative approaches?	3	4
8) What IH approaches do you currently use in practice? Mark "AC" if you use acupuncture, "AR" for aromatherapy, "MU" for music therapy, or "N" for none.	N	N

Posttest Survey Results

Integrative Health Management for Insomnia Education

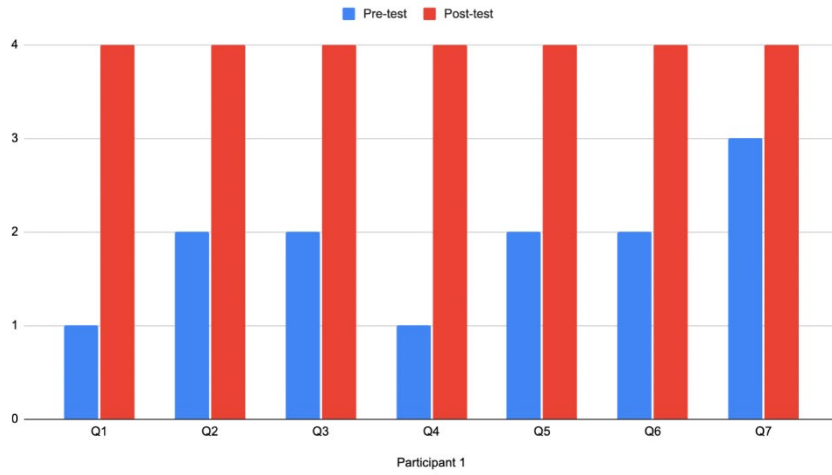
There are three integrative health (IH) approaches for the management of insomnia among older adults in CLTACH. These approaches are acupuncture, aromatherapy, and music therapy.

Question	Participant 1	Participant 2
1) From a scale of 1 as no knowledge to 4 as superior knowledge, how would you rate your knowledge of acupuncture to manage insomnia?	3	4
2) From a scale of 1 as no knowledge to 4 as superior knowledge, how would you rate your knowledge of aromatherapy to manage insomnia?	3	4
3) From a scale of 1 as no knowledge to 4 as superior knowledge, how would you rate your knowledge of music therapy to manage insomnia?	2	3
4) From a scale of 1 as not comfortable to 4 as very comfortable, how would you rate your comfort in recommending acupuncture?	3	4
5) From a scale of 1 as not comfortable to 4 as very comfortable, how would you rate your comfort in recommending aromatherapy?	4	4
6) From a scale of 1 as not comfortable to 4 as very comfortable, how would you rate your comfort in recommending music therapy?	4	4
7) From a scale of 1 as not likely to 4 as very likely, how likely are you to recommend these integrative approaches?	4	4
8) Type "1" for yes or "0" for no. Do you intend to apply the knowledge gained during the presentation to your practice? Why?	1	1

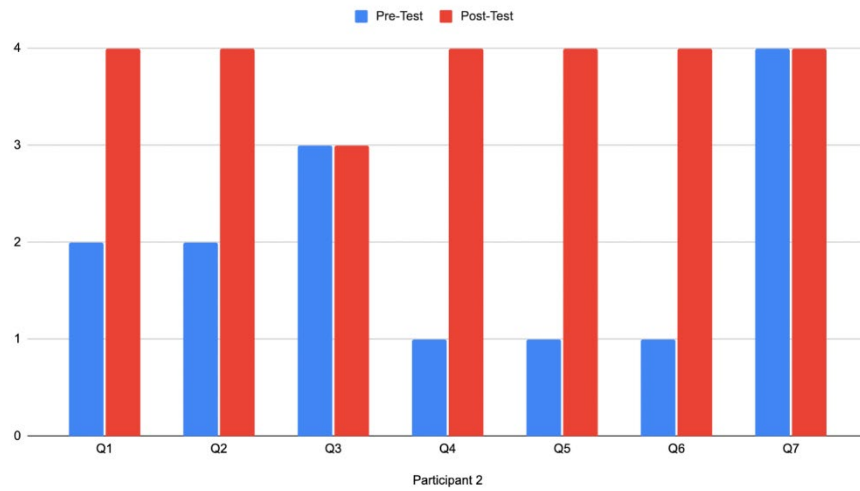
APPENDIX G:
PRETEST AND POSTTEST BAR GRAPHS

Pretest and Posttest Bar Graphs

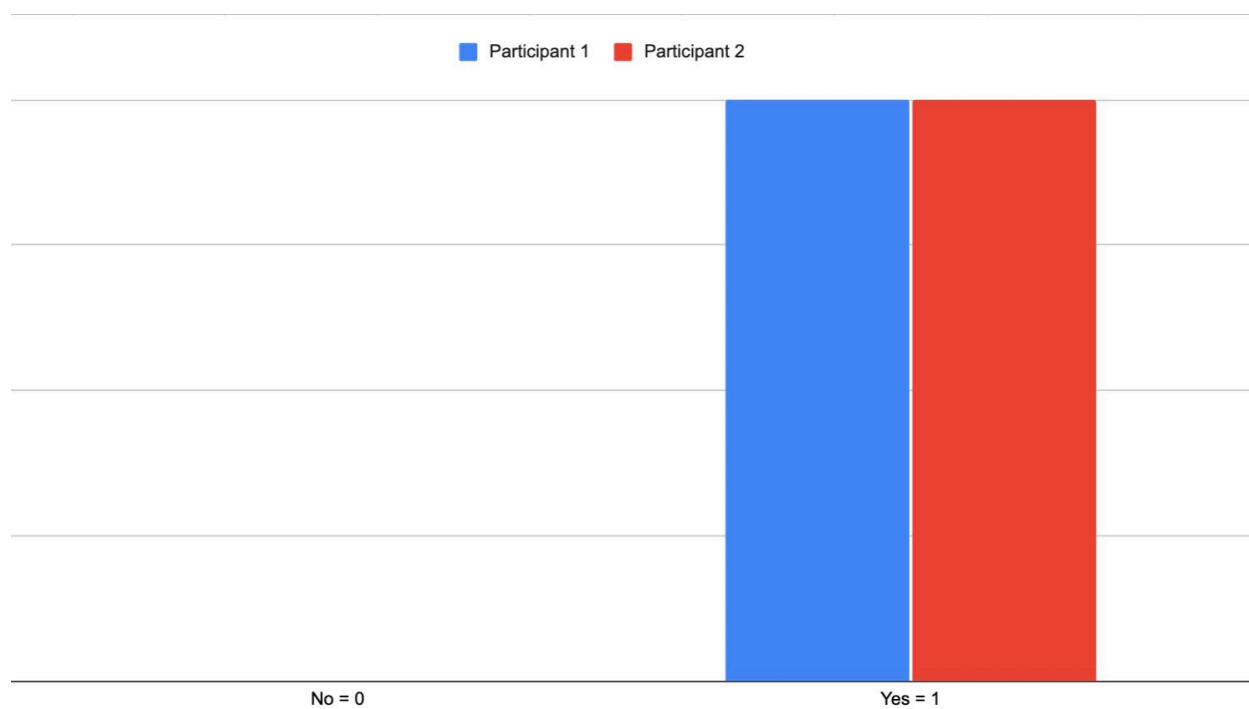
Pre-test and Post-test



Pre-Test and Post-Test



- Q1 Knowledge of acupuncture
- Q2 Knowledge of aromatherapy
- Q3 Knowledge of music therapy
- Q4 Comfort level in recommending acupuncture
- Q5 Comfort level in recommending aromatherapy
- Q6 Comfort level in recommending music therapy
- Q7 Likelihood to recommend IH approaches



Do you intend to apply the knowledge gained during the presentation to your practice?

APPENDIX H:
DEMOGRAPHICS TABLE

Demographics

	<i>Female</i>	<i>Male</i>	<i>Other</i>
<i>Professional Title</i>			
<i>Physician</i>			
<i>Physician Assistant</i>	100% (n=2)		
<i>Nurse Practitioner</i>			
<i>Registered Nurse</i>			
<i>Nursing Assistant</i>			
<i>Other</i>			
<i>Years Position</i>			
<i>0 – 2 years</i>	50% (n=1)		
<i>3 – 5 years</i>	50% (n=1)		
<i>6 – 10 years</i>			
<i>11 – 20 years</i>			
<i>21 – 30 years</i>			
<i>31 years – above</i>			
<i>Other</i>			
<i>Age</i>			
<i>Under 30 years old</i>			
<i>31 – 40 years old</i>	100% (n=2)		
<i>41 – 50 years old</i>			
<i>51 – 60 years old</i>			
<i>Over 60 years old</i>			
<i>Other</i>			
<i>Race</i>			
<i>Caucasian</i>	100% (n=2)		
<i>African-American</i>			
<i>Asian</i>			
<i>Hispanic</i>			
<i>Other</i>			

APPENDIX I:
PROJECT TIMELINE

Methodology

Plan for Data Collection and Analysis Integrative Health Management Education QI Project Timeline

Project Phase	Milestone	Estimated Date of Completion
Initiation	Approval from _____ DNP-AGACNP Specialty Coordinator, to proceed with the QI project development	2/18/19
	Project proposal emailed to Dr. Deborah Williams, Project Course Chair	3/28/19
Planning	Project Planning Meetings	Ongoing
	Project Proposal Defense	October 4, 2021
	IRB Application Submission/Approval	November 12, 2021
Implementation	Recruitment emailed sent to participants	November 20, 2021
	Recruitment email reminder sent to participants	November 27, 2021
Evaluation	Data Analysis	February 2022
	Project Final Defense	Middle of April 2022
	Dissemination of project findings and Recommendations to Cornerstone Long Term Acute Care Hospital stakeholders	End of April 2022

APPENDIX J:
LITERATURE REVIEW GRID

Author/Article	Hypothesis/Research Question	Study Design	Sample and Setting	Methods for Data Collection and Data Analysis	Findings
<p>Bishop, F. L. & Lewith, G. T. (2016). A qualitative exploration of how patients conceptualize their acupuncturists: technicians, caring professionals, and wise healers. <i>Complementary Therapies in Medicine, 27</i>: 74-81.</p>	<p>To explore how acupuncture clients conceptualize their acupuncturist.</p>	<p>Qualitative study, a semi-structured face-to-face interview exploring the patients' experiences of acupuncture and how they conceptualize their acupuncturists.</p>	<p>Sampling strategy used was called purposeful sampling. 6 men and 29 women between 26-86 years old; median = 53 years old. Participants recruited from Southern England suburban areas, 7 private practice acupuncturists clinics, and from University community; and National Health Service.</p>	<p>Data were collected through a semi-structured, face-to-face interview that lasted from 24 minutes to 2 hours (median = 53 min). Framework analysis was used to organize the participants' discourse into five domains: "themselves in relations to acupuncture, acupuncture consultations and treatments, their acupuncturists, their relationship with their acupuncturists, and the physical and institutional setting of acupuncture" (Bishop & Lewith, 2016, p. 75).</p>	<p>Three themes were generated basing on the participants' conceptualization of acupuncturists and they are acupuncturists as: a technician, a caring professional, and a wise and gifted healer. Three prototypical patient-practitioner relationships were identified; the consumerist, paternalistic, and mutualistic.</p>
<p>Brasure, M., Fuchs, E., MacDonald, R., Nelson, V. A., Koffel, E. Olson, C. M., ... & Kane, R. L. (2016). Psychological and behavioral interventions for managing insomnia disorder: an evidence report for a clinical practice guideline by the American College of Physicians. <i>Annals of Internal Medicine, 165</i>(2), 113-124. doi:10.7326/M15-1782.</p>	<p>Psychological and behavioral interventions for insomnia – Clinical Practice Guideline.</p>	<p>Systematic Review 60 RCTs</p>	<p>60 RCTs from English databases: MEDLINE EMBASE, PsycINFO via Ovid Cochrane Library Mean age = mid-40's United States, Canada, Sweden Norway, Australia, Scotland, China, Netherlands, and United Kingdom (2004-2015)</p>	<p>RevMan 5.2 (Nordic Cochrane Center) Dersimorian and Laird Cochran Q test PSQI ISI</p>	<p>CBT-I improves most outcomes Limited: long-term efficacy and other outcomes</p>

Author/Article	Hypothesis/Research Question	Study Design	Sample and Setting	Methods for Data Collection and Data Analysis	Findings
<p>Cao, H., Pan, X., Li H., & Liu, J. (2009). Acupuncture for treatment of insomnia: A systematic review of randomized controlled trials. <i>The Journal of Alternative and Complementary Medicine</i>, 15(11), 1171-1186. doi:10.1089/acm.2009.0041.</p>	<p>To investigate the efficacy of acupuncture compared to western medication in management of insomnia.</p>	<p>Systematic review of 46 RCTs</p>	<p>46 RCTs 3811 patients PubMed, Cochrane Library (2008 Issue 3), China Network Knowledge Infrastructure (CNKI), Chinese Scientific Journal Database (VIP), and Wan Fang Database</p> <p>From inception to 2008</p>	<p>RevMan 5.0.17 software used for data analysis with effect estimate presented as: Relative risk (RR) Mean difference (MD) 95% confidence interval (CI)</p> <p>PSQI</p>	<p>Meta-analyses showed beneficial effect of acupuncture compared with no treatment (MD -3.28, 95% CI -6.10 TO -0.46, p =0.02; 4 trials) and real acupuncture compared with sham acupuncture (MD -2.94, 95% CI -5.77 to -0.11, p =0.04; 2 trials) on total scores of PSQI. Acupuncture was superior to medications regarding the number of patients with increased in total sleep duration for >3 hrs (RR 1.53, 95% CI 1.24-1.88, p < 0.0001). No difference between acupuncture and medications in average sleep duration (MD -0.06, 95% CI -0.30-0.18, p =0.63). Acupuncture plus herbs was significantly better than herbs alone on increase of sleep rates (RR 1.67, 95% CI 1.12-2.50, p = 0.01).</p>

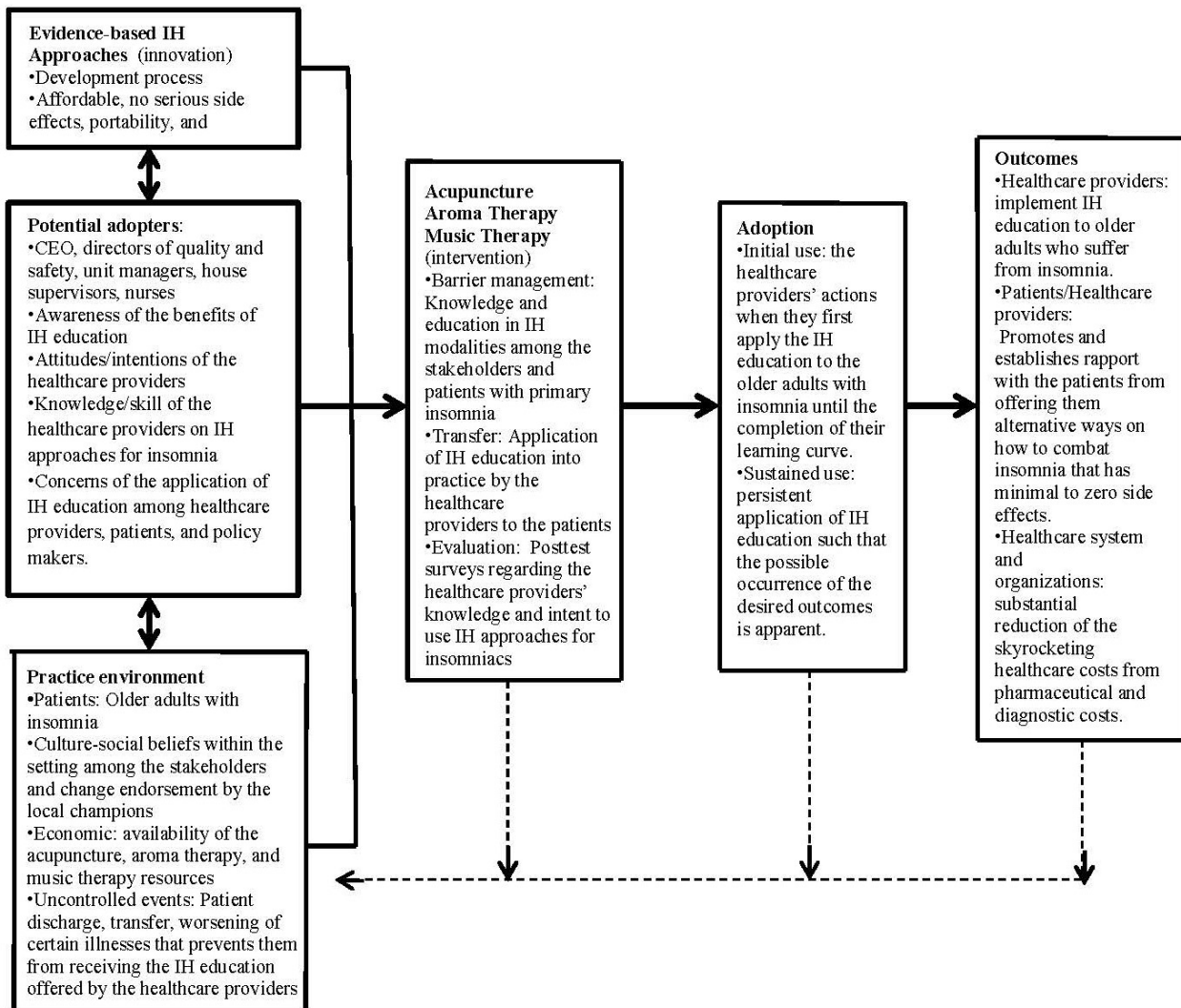
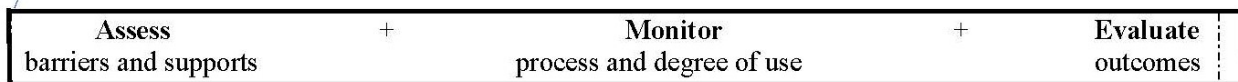
Author/Article	Hypothesis/Research Question	Study Design	Sample and Setting	Methods for Data Collection and Data Analysis	Findings
<p>Feng, F., Zhang, Y., Hou, J., Cai, J., Jiang, Q., Li, X., Zhao, Q., & Li, B. (2017). Can music improve sleep quality in adults with primary insomnia? A systematic review and network meta-analysis. <i>International Journal of Nursing Studies</i>, 77(2018): 189-196. doi:10.1016/j.ijnurstu.2017.10.011</p>	<p>To investigate the efficacy of music therapy in adults with primary insomnia.</p>	<p>Systematic review and network meta-analysis 1339 patients</p>	<p>1339 patients English databases: PubMed, EMBASE Cochrane, China National Knowledge Infrastructure Library (Inception to May 2017)</p>	<p>Network meta-analysis was used to identify evidence from relevant clinical trials with prespecified sleep quality was the primary outcome and sleep onset latency and sleep efficiency were the secondary outcomes.</p>	<p>Music-associated relaxation was statistically effective than the patients' usual care in terms of overall sleep quality. Music-associated relaxation and listening to music had significant advantages in terms of sleep onset latency. Required: larger clinical trials with high quality</p>
<p>Fismer, K. L. & Pilkington, K. (2012). Lavender and sleep: A systematic review of the evidence. <i>European Journal of Integrative Medicine</i>, (2012): e436-e447. doi:10.1016/j.eujim.2012.08.001</p>	<p>To investigate the efficacy of aromatherapy using lavender oil for insomnia</p>	<p>Systematic review 4 RCTs 3 non-RCTs 1 Counterbalanced</p>	<p>4 RCTs 3 non-RCTs 1 Counterbalanced Major medical databases: AMED, BNI, Cochrane CENTRAL, EMBASE, MEDLINE, PsychINFO, PubMed (From inception – April 2012)</p>	<p>Polysomnographic (PSG) sleep – measures sleep quality Profile of Mood States (POMS) questionnaire to measure self-reported subjective sleep quality</p>	<p>Inhalation of lavender oil offers small to moderate benefit for insomnia. Required: larger clinical trials with high quality</p>
<p>Guo, J., Wang, L. P., Liu, C. Z., Zhang, J., Wang, G. L., Yi, J. H., & Cheng, J. L. (2013). Efficacy of acupuncture for primary insomnia: a randomized controlled clinical trial. <i>Evidence-Based Complementary and Alternative Medicine</i>, 2013(163850): 1-10.</p>	<p>To identify the efficacy of verum acupuncture compared to estazolam and sham acupuncture on primary insomnia.</p>	<p>Randomized controlled trial</p>	<p>Single-blinded, double-dummy, placebo-controlled clinical trial 180 patients randomly assigned to 3 groups: verum group, estazolam group, and sham acupuncture group Beijing Traditional Chinese Medicine Hospital</p>	<p>Pittsburgh Sleep Quality Index (PSQI) Epworth Sleepiness Scale (ESS)</p>	<p>The verum group reported improved vitality and sleep quality, decreased sleepiness and daytime dysfunction compared to estazolam and sham acupuncture group.</p>

Author/Article	Hypothesis/Research Question	Study Design	Sample and Setting	Methods for Data Collection and Data Analysis	Findings
			in Beijing, China		
Lee, M-K., Lim, S., Song, J-A., Kim, M-E, & Hur, M-H (2017). The effects of aromatherapy essential oil inhalation on stress, sleep quality and immunity in health adults: Randomized controlled trial. <i>European Journal of Integrative Medicine</i> , 12(2017): 79-86. doi:10.1016/j.eujim.2017.04.009	To investigate the effects of aromatherapy on stress, sleep quality, and immune function in health adults.	Randomized controlled trial	60 participants 20-60 years old N=30 aromatherapy group, n=30 control group	ANS and HbA1c levels were measured to examine stress. CES-D used to measure depression. NRS used to measure quality of sleep Immunity = EDTA tube used to measure CD4, CD8, and CD16; SST to measure immunoglobulin (IgG).	Aromatherapy group had significantly higher sleep quality (p=0.001), and significantly lower perceived stress levels (p ≤ 0.001) and depression (p = 0.049).
Shergis, J. L., Ni, X., N., Jack, M. L., Zhang, A. L., Guo, X., Li, Y., ... Xue C. C. (2016). A systematic review of acupuncture for sleep quality in people with insomnia. <i>Journal of Complementary Therapies in Medicine</i> , 26, 11-20. doi:10.1016/j.ctim.2016.02.007	Systematic review of acupuncture for sleep quality in people with insomnia.	Systematic review and meta-analysis 30 RCTs	30 RCTs 2363 participants From English databases: PubMed, EMBASE CINAHL, CENTRAL AMED; From Chinese databases: CBM, CNKI, CQVIP Wanfang	RevMan Version 5.2 PSQI	Acupuncture showed statistically significant results compared to placebo/sham and pharmacotherapy. Heterogeneity and bias in the included studies limit the evidence
Street, W., Weed, D., & Spurlock, A. (2014). Use of music in the treatment of insomnia. <i>Holistic Nursing Practice</i> , 28(1): 38-42. doi:10.1097/HNP.000000000000005	To evaluate the use of music to improve sleep quality among adults who suffer from insomnia.	Pilot study	11 participants 6 women and 5 men 22-50 yrs old 8 counties in Southeastern State	Pretest – PSQI and Posttest – PSQI were used to determine if music therapy can improve quality of sleep among patients with insomnia	Use of music demonstrated improvement in sleep quality. Significant improvement noted in minutes to sleep, hours of sleep, and trouble staying awake during the day. Use of music as an intervention increase an individual's self-care activities.

Author/Article	Hypothesis/Research Question	Study Design	Sample and Setting	Methods for Data Collection and Data Analysis	Findings
Takeda, A., Watanuki, E., & Koyaman, S. (2017). Effects of inhalation aromatherapy on symptoms of sleep disturbance in the elderly with dementia. <i>Hindawi Evidence-Based Complementary and Alternative Medicine</i> , 2017(1902907): 1-7. doi:10.1155/2017/1902807	To investigate the hypothesis that administering inhalation aromatherapy improves sleep disturbance in the elderly with dementia	Cohort study	19 participants Control period was the first 20 days and intervention period was the second 20 days.	Control period was the first 20 days and intervention period was the second 20 days. MMS measures severity of dementia. FIM measures ADL items Vibrometer used to measure sleep disturbance symptoms.	Total sleep time and duration of the longest sustained sleep period was significantly longer in the intervention period than in the control period. Significantly less early morning awakening in the intervention period than in the control period.
Wang, C-F., Sun, Y-L., & Zang H-X. (2013). Music therapy improves sleep quality in acute and chronic sleep disorders: A meta-analysis of 10 randomized studies. <i>International Journal of Nursing Studies</i> , 51(2014): 51-62. doi:10.1016/j.ijurstu.2013.03.008.	To evaluate the efficacy of music therapy on sleep quality in acute and chronic sleep disorders in adults.	Systematic review and meta-analysis of 10 RCTs	Systematic search of PubMed, Embase, and the Cochrane Library without language restriction. 10 studies = 557 participants	Standardized mean difference (SMD) used to measure the effect and results with 95% CIs. SMD	10 studies = 557 participants – sleep quality was significantly improved by music (standard mean difference: -0.63; 95% CI: -0.92 to -0.34; p < 0.001).
Wilt, T.J., MacDonald, R., Brasure, M., Olson, C.M., Carlyle, M., Fuchs, E., ... Kane, R.L. (2016). Pharmacologic treatment of insomnia disorder: an evidence report for a clinical practice guideline by the American College of Physicians. <i>Annals of Internal Medicine</i> , 165(2), 103-112.	Pharmacological interventions for insomnia – Clinical Practice Guideline.	Systematic review 35 RCTs	35 Randomized controlled trials from English databases: MEDLINE, EMBASE, Cochrane Central Register of Controlled Trials, PsycINFO United States (2004-2015)	RevMan 5.3 (Nordic Cochrane Center) Dersimonian and Laird Cochran Q test PSQI ISI	Eszopicione, zolpidem, and suvorexant improve short-term sleep outcomes for adults Not known long-term efficacy

Author/Article	Hypothesis/Research Question	Study Design	Sample and Setting	Methods for Data Collection and Data Analysis	Findings
doi:10.7326/M15-1781.					

APPENDIX K:
OTHER DOCUMENTS AS APPLICABLE TO THE PROJECT (THEORETICAL
FRAMEWORK: THE OTTAWA MODEL)



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