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2021

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UNIVERSITY OF CALIFORNIA

Los Angeles

Reiki Therapy for Anxiety in Patients Receiving

Botulinum Toxin Facial Injections

A dissertation submitted in partial satisfaction of the

requirements for the degree

Doctor of Nursing Practice

by

Sara Kranke

2021

ABSTRACT OF THE DISSERTATION

Reiki Therapy for Anxiety in Patients Receiving

Botulinum Toxin Facial Injections

by

Sara Kranke

Doctor of Nursing Practice

University of California, Los Angeles, 2021

Professor Paul Michael Macey, Chair

BACKGROUND: In the non-surgical cosmetic setting, anxiety (blood-injury-injection phobia) and pain are strongly associated with a procedure that involves facial injections. Reiki therapy, a Japanese healing technique, is already used in the healthcare setting to assist with reducing anxiety and pain. **OBJECTIVES:** To determine whether Reiki therapy effectively reduces anxiety and pain while also improving patient satisfaction in patients receiving facial injections. **STUDY DESIGN:** Using a randomized experimental control group design, Reiki therapy (Reiki group) lasting 15 minutes was compared against the current standard of care (control group) in a non-surgical cosmetic office in women ages 25-65 receiving botulinum toxin facial injections. **METHODS:** Measurements include anxiety (State Trait Anxiety Inventory), procedural pain (Analog Pain Scale), satisfaction (likely to refer survey), and vital signs measured pre- and post-Reiki in the intervention group and pre- and post-procedure in the control group. Statistical

analysis includes descriptive statistics, independent and paired sample t-test, Mann-Whitney test, and Wilcoxon matched pairs test. **RESULTS:** Anxiety and pain were significantly decreased, and satisfaction significantly increased in the Reiki group compared to the control group. **CONCLUSIONS:** This study demonstrates that Reiki therapy has a significant effect on reducing anxiety and pain while improving satisfaction in patients receiving facial injections in the non-surgical aesthetic medical care setting. Future studies should consider a larger sample size and target other treatments that involve needle injections.

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The dissertation of Sara Kranke is approved.

Suzette Cardin

Betty L. Chang

Christine Samuel-Nakamura

Paul Michael Macey, Committee Chair

University of California, Los Angeles

2021

DEDICATION

This dissertation is dedicated to my son Allden Kranke. While pregnant with him, I was hospitalized twice and was told that he may not make it into the world. This caused a great deal of situational anxiety and I did not want to take any prescription medications during this time. Instead, I chose to receive Reiki therapy twice a month and not only did he survive, but also, I felt stronger and happier through the last half of my pregnancy than I ever could have without treatment. I developed this innate sense of simply knowing that we would both be okay, and that I could heal my own body by virtue of energy. This is why I wanted to share Reiki with those who I medically care for daily who suffer from anxiety and chose it as the intervention for my project.

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ACKNOWLEDGEMENTS

VITA

EDUCATION

2007- 2009   Associate Degree in Nursing

                    Harbor Community College - Wilmington, California

2012-2014   Bachelors of Science in Nursing

                    University of Phoenix - Phoenix, Arizona

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PROFESSIONAL EXPERIENCE

04/2019 - present   EXER Urgent Care - South Bay, CA

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CHAPTER ONE: INTRODUCTION

Reiki therapy, a form of complementary and alternative medicine (CAM), is classified as a type of biofield energy that involves the use of a systematic hand placement on specific areas of the body to promote relaxation and release of stress (Thrane & Cohen, 2014). The Japanese word Reiki is translated into "spirit guided life energy" and is provided through gentle touch (Baldwin et al., 2017). The practitioner's hands are placed on or held slightly above the body in a systematic fashion targeting specific locations on the body to promote healing. The practitioner is not the cause of the healing, but rather a channel for the energy to support and facilitate the innate, self-healing abilities of the recipient (Thrane & Cohen, 2014). The recipient experiences sensations of warmth and a flow of soothing energy from the practitioner's hands into the body (Baldwin et al., 2017).

A trend in healthcare over the last 10 years includes the addition of Reiki services to standard of care (Vitale, 2014). Numerous studies support the use of Reiki therapy as a way to reduce anxiety and pain. Vergo et al. (2017) conducted a 5-year clinical study in hospitalized patients and concluded that Reiki therapy offered at bedside improved fatigue and anxiety in a heterogeneous hospitalized patient population. Baldwin et al. (2017) investigated the effects of Reiki on surgical patients and concluded that Reiki showed significant reductions in pain, blood pressure, respiration rate, and state anxiety. Dyer et al., (2019) recently investigated the effects of Reiki on non-clinical patients and found significant reductions in anxiety, pain, and overall well-being.

In hospitals and clinics across America, Reiki continues to be accepted as a meaningful and cost-effective way to improve health care (Rand, 2019). Research done through the National Center of Complementary and Alternative Medicine (NCCAM) revealed that 55% of

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respondents support the use of CAM in combination with standard of care as a way to improve overall health (Baldwin et al., 2017).

Problem Statement

In the non-surgical cosmetic setting, anxiety is strongly associated with the anticipation of a treatment with facial injections with botulinum toxin. For the purpose of this project, anxiety will be defined as blood injury injection phobia (BII), a common psychiatric disorder with an estimated prevalence of 3% to 4% in the United States (Ab et al., 2014). Blood injury injection phobia is a condition in which people faint from seeing blood, from the anticipation of physical injury from a needle, or from the anticipation of the actual injection characterized by intense irrational fear (Ab et al., 2014). This Doctor of Nursing Practice (DNP) project sets out to demonstrate how the use of Reiki therapy in a non-surgical cosmetic setting can reduce anxiety, pain, and improve satisfaction related to the anticipation of a treatment with facial injections.

Anxiety and pain in this patient population is important to recognize and intervene upon because those who experience heightened anxiety and/or pain often experience undesirable patient safety events such as fainting. Blood injury injection phobia provokes an immense amount of anxiety with a reported 75% of those with BII reporting a history of fainting in response to phobic stimulus (Ayala et al., 2009). Fainting in response to BII stimulus is a large concern for many patients suffering from this phobia and can aggravate avoidance, cause delays in pre-scheduled appointment duration, and ultimately lead to a poor treatment experience or a decrease in patient satisfaction all of which can greatly affect the organizations revenue as it relates to patient retention (Ayala et al., 2009).

Patient satisfaction in this setting is one of the most important variables because cosmetic procedures, such as botulinum toxin facial injections, are elective therefore the cost is not

covered by medical insurance. Patient satisfaction is almost always associated with patient retention; when the patient feels that their concerns are important to the organization, they will remain loyal (Prakash, 2010). Therefore, finding cost effective methods aimed at minimizing anxiety and pain related to a procedure that involves injections is important because the benefits would result in positive outcomes not only for the patients but for the organization as a whole.

PICO Question

In adult women ages 25-65 receiving botulinum toxin facial injections, how does 15 minutes of Reiki therapy before the treatment, compared with no pre-treatment interaction, affect pre-procedural anxiety?

Scientific Underpinnings

The scientific underpinnings, or foundation, upon which this project is supported by include the recognition of the wholeness and health of human beings and providing care based on the understanding that humans are continuously interacting with their environments (AACN, 2006). Health care providers can often become overwhelmed with tasks and routine, losing sight of the caring aspect that is required when managing patient's perception as it relates to their environment, such as unidentified BII prior to facial injections. This project brings attention to the importance of the relationship between the healthcare provider, the patient, and the environment and provides a proposed method of enhancing that relationship and improving care and outcomes.

Essential V: Health Care Policy for Advocacy in Health Care of The Essentials of Doctoral Education for Advanced Nursing Practice have been identified as the supporting essential that frames the purpose for this DNP project. Healthcare policies rarely include a non-pharmacological intervention outlining the management of anxiety and pain when performing

non-surgical cosmetic facial injections. Research supports the use of topical anesthetics as a method of reducing perceived pain, however anxiety, depending on the severity, may interfere with this method. Therefore, this project will support and facilitate the implementation of an evidence-based method proven to reduce anxiety and pain in various patient populations and healthcare settings. If Reiki therapy demonstrates a significant reduction in pain and anxiety, advocating to have it added to current policy and procedure will be more effective and as a result contribute to improved outcomes and quality of care.

CHAPTER TWO: THEORETICAL FRAMEWORK

Watson's theory recognizes the important relationship between human caring and nursing (Alligood & Tomey, 2010). The theory is based on kindness, caring, love of self, and love of others (Alligood & Tomey, 2010). Watson developed her theory as a framework for nurses to help guide in patient care (Alligood & Tomey, 2010). The elements of the Theory of Human Caring consist of the caritas process, the formation of a transpersonal caring relationship, caring moments, and caring healing modalities (Lukose, 2011). Treating patients from a loving place and providing a holistic approach through caring evokes the caritas process (Lukose, 2011). The nurse-patient relationship becomes transpersonal and authentic when the nurse acknowledges the spirit of the patient (Lukose, 2011).

The core concepts of Watson's theory suggest that the practitioner should approach patient care beyond the ego body using a higher, spiritual space cultivating caring moments (Watson, 2008). Watson (2008), guides practitioners to treat each patient with heart centered, healing care based on practicing and honoring the wholeness of the mind-body-sprit connection in oneself and in the patient. This involves creating a healing environment at all levels whereby wholeness, comfort, dignity, and peace are potentiated. Providing Reiki as a care modality

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fosters and demonstrates holistic caring for patients with pre-procedural anxiety. Practicing Reiki on patients allows the experience of what Watson (2008) describes as the "caring moment," a transformative interaction between oneself and another that could potentially change one's life. Watson (2008) writes that holistic practices, such as Reiki, are grounded in a spiritual-ethical-cultural dimension honoring the beliefs, perceptions, and values of ancient medicine and healing practices from traditions that uphold the body and have the power at the deepest and infinitely most sacred level to heal.

CHAPTER THREE: REVIEW OF LITERATURE

Vitale & O'Connor (2006) performed a quasi-experimental study to compare pain and anxiety levels in women (ages 40-73) after an abdominal hysterectomy. The participants were randomly assigned to the experimental or control group. The experimental group ($n = 10$) received traditional nursing care plus three 30-minute sessions of Reiki postoperatively and the control group ($n = 12$) received traditional nursing care. Reiki was provided by registered nurses, and hand positions were supervised by a Reiki master for consistency. Results of the study demonstrated that the experimental group reported less pain ($p = 0.04$) and requested less pain medication ($p = 0.04$) than the control group (Vitale & O'Connor, 2006). In addition, the experimental group reported less anxiety ($p = 0.005$) than the control group (Vitale & O'Connor, 2006). This study is relevant to the research topic of interest in that it supports the use of Reiki therapy as a relevant and effective intervention in reducing anxiety and pain prior to a medical procedure. Researchers utilized valid tools, the Trace State Anxiety Inventory (STAI) for Anxiety and the Numeric Pain Scale for pain. The sample size of each group was low, but this study is a good demonstration of the favorable effects of Reiki therapy and should be replicated

with a larger population and consider the addition of a survey for evaluating participants' perceptions of the effect of Reiki therapy.

Baldwin et al. (2017) conducted a 3-armed randomized study to investigate the effects of Reiki on patients ($n = 46$) undergoing knee replacement surgery. The sample included both male and female patients and took place in an in-patient hospital setting. The aim of the study was to evaluate the use of Reiki on pain, stress, and anxiety. Group one received standard of care (SOC) and Reiki, group two received SOC and placebo Reiki, and group three received SOC and quiet time. All treatments were done in either the pre- or post-operative room in the hospital. Reiki masters were provided with a detailed protocol on the hand positions to be used and the order in which to use them. The Sham Reiki (or placebo) practitioners were not trained on Reiki but were also given the same protocol as the Reiki masters. The results of this study demonstrate that Reiki therapy has a significant effect on reducing pain ($p = 0.003$) and anxiety ($p = 0.008$). All outcomes were measured with valid tools and vital signs were also measured for added validity to findings. Blood pressure was significantly reduced when comparing pretreatment versus post treatment in the Reiki group ($p < .001$). Respiratory rate was also significantly reduced in the Reiki group when comparing pretreatment versus post treatment (after surgery). Lastly, an important finding was the reduction in hospital length of stay after the intervention in the Reiki group which had the highest percentage of discharges at 48 hours rather than 72 hours. Strengths include the research design and statistical relevance of its findings. This study was selected for its positive findings in support of Reiki therapy in the reduction of anxiety and pain before a medical procedure in adults.

Kurebayashi et al., (2016) conducted a randomized control study to evaluate how effective Reiki is on reducing stress and anxiety. The study population was made up of

volunteers and military personnel needing ambulatory care at the Institute for Integrated and Oriental Therapy (Kurebayashi et al., 2016).They examined 122 people, divided into 3 groups: Massage and rest, massage and Reiki, and a control group with no intervention (Kurebayashi et al., 2016). Anma massage technique was used for 20 minutes in the massage groups and in the Reiki group 10 minutes of 5 hand position placements were added. The Reiki and massage sessions took place twice a week for one month. Vasconcelo's Stress Symptoms List (LSS) and the STAI, both valid and reliable tools, were used to measure stress and anxiety before and after eight treatment sessions over a month (Kurebayashi et al., 2016). Statistical significance was found in the Reiki group versus the control group ($p = 0.014$) with a 33% reduction in stress, and significant reduction in anxiety ($p < 0.01$) (Kurebayashi et al., 2016). The strengths of the study include sample size, study design, and the use of valid and reliable tools. The limitations include that the volunteer participants had various degrees of anxiety and stress, that the interventionalists were students supervised by the instructors, and that descriptive statistics were not provided on the participants. However, this article is pertinent to the research of interest because it further supports the use of Reiki as a positive intervention for the reduction of anxiety in adults. Of note is the loss of 21 participants, 13 who did not finish the treatments and eight who did not respond to questionnaires, however the final number of participants in each group was still within the minimum of 30 determined by the analysis of the sample.

Potter (2017) performed a randomized control study on women undergoing a breast biopsy to determine the feasibility of testing the effects of Reiki on anxiety related to the procedure. Thirty-two women were randomized to either the Reiki intervention group (Reiki plus convention care) or to the conventional care group (Potter, 2017). Reiki treatments were given within seven days before and one within seven days after the biopsy. Reiki protocol consisted of

a series of hand placements held for 3-5 minutes each (four head positions, four torso positions, and 2 leg positions). All Reiki practitioners were trained per protocol and delivered the same standardized treatments. Anxiety and depression were measured with valid tools: STAI, Center for Epidemiological Studies Depression Scale (CES-D), and the Hospital Anxiety and Depression Scale (HADS). This study found statistical significance in a reduction in anxiety in the experimental group ($p = 0.0011$) versus the control group (Potter, 2017). The sample size was small but still this study contributes valuable data and methodology for future studies to build upon. This study was chosen for its positive results that support Reiki therapy to reduce anxiety in adult women prior to a medical procedure.

Birocco et al. (2012) performed a 3-year study that aimed to evaluate Reiki therapy in the management of anxiety, pain, and global wellness in cancer patients. They studied 118 men and women with a mean age of 55 with cancer receiving chemotherapy (Birocco et al., 2012). Pain and anxiety were measured using a numeric rating scale (Visual Analog Scale) before and after Reiki while subjects received chemotherapy (Birocco et al., 2012). Each Reiki session lasted about 30 minutes and a maximum of four treatments were administered during four chemotherapy infusion sessions (Birocco et al., 2012). Statistically significant changes in the mean anxiety scores before and after each treatment were observed ($p = 0.016$) (Birocco et al., 2012). Limitations include a population of various stages of cancer patients and the strengths include study duration, sample size, and number of treatments delivered (Birocco et al., 2012). This study was chosen to support the proposed research topic because it shows that Reiki therapy has no side effects and is highly acknowledged by patients. It also supports the use of Reiki to reduce anxiety during a medical intervention that is commonly associated with anxiety.

Synthesis of Literature Review

Based on current literature it can be concluded that the implementation of Reiki therapy in various healthcare settings can significantly reduce anxiety and pain. Despite the physiological or psychological symptom, Reiki has shown to improve distress when paired with standard of care in medical settings. However, the sample sizes in Vitale & O'Connor (2006) and Potter (2017) were very low, and were all female, which despite significant outcomes should be considered for implementation or future study replication. All of the studies were done in an in-patient medical setting except for Kurebayashi et al. (2016), who evaluated Reiki therapy on military personnel. The sample size of Kurebayashi et al. (2016) study was large, and the study did have significant findings, but the difference in setting and population, from the other studies in the review, should be noted and considered for future studies interested in the effect of Reiki of medical procedural anxiety or pain. Baldwin et al. (2017), Kurebayashi et al., (2016), and Potter (2017) chose a randomized control study design, which adds to the validity of the significant reduction in pain and anxiety that was demonstrated in all three studies.

Despite the varying degrees of strengths and limitations of each study, the review results all demonstrated that by adding Reiki therapy to standard of care, health care outcomes such as a reduction in the frequency of pain medication administration, and a reduction in length of hospital stay, as well as a reduction in perceived anxiety and pain can be achieved (Baldwin et al., 2017;Vitale & O'Connor, 2006). Gaps identified in the literature include a limited amount Reiki research in the outpatient setting and the lack of information known about the phenomenon or experience of receiving Reiki, how many hand positions are needed for each therapy session, and the length of time needed for each session to be effective.

CHAPTER FOUR: METHODS

This DNP project was performed utilizing a randomized control equivalent group design. Reiki therapy (Reiki group) lasting 15 minutes before facial injections was compared against Reiki therapy for 15 minutes after facial injections (control group) in a non-surgical cosmetic office in women ages 25-65 receiving botulinum toxin facial injections.

Sample

A convenience sample was obtained from a list of current patients from an outpatient non-surgical cosmetic clinic located in Long Beach, California. Institutional Review Board (IRB) approval was obtained prior to the study. A power analysis indicated that a sample size of 57 participants would allow detection of moderate (0.25) effect sizes on paired t test at a p value of .05 and power of 0.80. Inclusion criteria were women ages 25-65 who had already received at least one treatment of facial injections with botulinum toxin and expressed feeling anxiety related to a fear of needles. Subjects were screened prior to induction and only those who scored greater than or equal to 20 points during the anxiety screening were included. Exclusion criteria were women who had never had a procedure with facial injections, who were taking anti-anxiety or antidepressant medications, who had a history of high blood pressure controlled with medication, and who had a history of dysrhythmias controlled by medication.

Data Collection: Instruments

Demographics

Demographic data was collected on all participants and included age, religion, race, and number of prior treatments. Vital signs (blood pressure, respiratory rate, and heart rate) were also collected in both groups to track trends in biological markers of anxiety and pain.

Anxiety

Anxiety screening, for inclusion, was done using the Severity Measure for Specific Phobia (SMSP)—Adult (see Appendix A), a valid measurement tool developed by the American Psychiatric Association (2016) . The Severity Measure for Specific Phobia—Adult is a 10-item measure that assesses the severity of a specific phobia in individuals age 18 and older. Each item on the measure is rated on a 5-point scale (0 = never; 1 = occasionally; 2 = half of the time; 3 = most of the time, and 4 = all of the time). The total score can range from 0 to 40 with higher scores indicating a greater severity of a specific phobia. Those who score greater than or equal to a score of 20 (mild-moderate phobia related anxiety) were included in the study. The questionnaire took approximately 3 minutes to complete.

Anxiety was measured using the State-Trait Anxiety Inventory for Adults, Y1 form (STAI-Y1), a 20-item self-evaluation questionnaire (see Appendix B). The State-Trait Anxiety Inventory (Y1) is a short version to the original State-Trait Anxiety Inventory and is used for the purpose of capturing perceptions of anxiety at the moment in time of the self-evaluation. The STAI-Y1 has 20 items for assessing state anxiety. State anxiety items include: "I am tense; I am worried" and "I feel calm; I feel secure." All items are rated on a 4-point scale (e.g., from "almost never" to "almost always"). Higher scores indicate greater anxiety (Spielberger et al., 1983).

Pain

The measurement for procedural pain was done using the Visual Analog Scale, a valid single item Likert scale commonly used in healthcare settings to obtain a verbal perception of pain ranging between 0 (no pain) and 10 (the most pain). Patients were asked to rate pain

between 1 and 10 after being shown a visual scale. Pain was assessed after the facial injections in both the experimental and control groups.

Satisfaction

Satisfaction was measured using The Net Promotor Score (NPS), commonly used by Fortune 500 companies to measure the customer experience (see Appendix C). It is calculated using a 0-to-10 score to answer one question: "How likely are you to recommend a particular service or company to a friend or colleague?" (Koladycz et al., 2018). The NPS score is a predictor of growth and a proven indicator of customer satisfaction in for profit industries (Koladycz et al., 2018).

Data Collection: Protocol

Participants were randomly assigned to experimental (Reiki group) or control groups. The groups were assigned when the patient arrived at the clinic for treatment. The subject was given a laminated card with either the letter "A" or "B" randomly selected by the medical assistants who checked the subjects in when they arrived. The subjects were either assigned to the experimental group (A) or to the control group (B). After the subjects from both groups were placed in a treatment room, they received a standard consultation and introduction from the medical provider who was also the Reiki practitioner and the primary investigator (PI). Subjects then were asked to complete the SMSP. If the subject scored 20 or higher, vital signs were obtained and documented in the electronic healthcare record.

The Reiki group was asked to complete the STAI-Y1 form before receiving 15 minutes of Reiki therapy by the PI, a single provider trained and certified in Shaman Reiki therapy, before the facial injection procedure. After the Reiki therapy was completed, vital signs were re-measured, and the subjects were asked to repeat the STAI-Y1 and provide a verbal pain rating.

Those in the control group were asked to complete the STAI-Y1 form, after the consultation, but then immediately received the facial injections. After the procedure with facial injections, subjects in the control group were asked to rate their pain before receiving 15 minutes of Reiki therapy. Both groups were asked to complete a satisfaction survey before leaving the clinic.

CHAPTER FIVE: RESULTS

Data was analyzed using SPSS version 27.0 (SPSS Inc., Chicago, Illinois) and included descriptive statistics, independent and paired samples t-test, Mann-Whitney test, and Wilcoxon matched pairs test. Statistical significance was set at $p < .05$.

Descriptive and Background Statistics

Table 1 displays the frequency counts for selected variables. The sample size ($n = 60$) was equally divided into the experimental and control groups. Ages of the patients ranged from 25 to 34 years (22%) to 55 to 65 years (15%) with the median age being $Mdn = 39.50$ years. The most common racial/ethnic backgrounds were white (43%) and Hispanic (27 %). The number of treatments these patients had received in the past were 1 to 3 treatments (27%) to 10 or more treatments (12%) with the median number of treatments being $Mdn = 4.50$. The most common religious backgrounds were Christian (43%) or Catholic (22%). When given a 10-point rating scale as to whether they would refer others for treatment, all respondents either gave a rating of nine (17%) or 10 (83%).

Comparison Between Groups

Table 2 displays selected comparisons between groups. These comparisons were performed using both t tests for independent means and Mann-Whitney tests. The Mann-Whitney tests were included for statistical verification purposes. No significant differences between the two groups were found at baseline for level of anxiety, systolic and diastolic blood

pressure as well as pulse rate based on either test. The experimental group had significantly

higher baseline respiration ($M = 18.50$) than did the control group ($M = 17.30$), ($t = 2.70$, $p =$

.009; $z = 2.49$, $p = .01$). Level of subjective pain after treatment and likelihood of referring were

both significantly more favorable for experimental group patients ($p = .001$).

Answering the PICO Question

The PICO question for this study was, in adult women ages 25-65 receiving botulinum

toxin facial injections, how does 15 minutes of Reiki therapy before the treatment, compared

with no pre-treatment interaction, affect pre-procedural anxiety? To answer this question, Table

3 displays the relevant paired t test and Wilcoxon test. The results demonstrated an 8% decline in

anxiety from pretest ($M = 58.33$) to posttest ($M = 53.53$). This difference was significant ($t =$

6.74, $p = .001$; $z = 4.59$, $p = .001$). Further inspection of Table 3 found significant pretest to

posttest declines for systolic blood pressure (5%), diastolic blood pressure (4%), pulse rate (9%),

and respiration (12%).

Table 1: *Frequency Counts for Selected Variables*

Variable	Category	n	%
Patient Group			
	Experimental	30	50.0
	Control	30	50.0
Age Category [a]			
	25 to 34	13	21.7
	35 to 44	24	40.0
	45 to 54	14	23.3
	55 to 65	9	15.0
Race/Ethnicity			
	White	26	43.3
	Black	8	13.3
	Hispanic	16	26.7

	Asian				7		11.7
	Other				3		5.0
Number of treatments [b]							
	1 to 3 treatments				16		26.7
	3 to 6 treatments				23		38.3
	6 to 10 treatment				14		23.3
	10 or more treatments				7		11.7
Religion							
	Catholic				13		21.7
	Christian				26		43.3
	Jewish				4		6.7
	Unspecified				5		8.3
	Other				12		20.0
Likely to Refer Others							
	Nine				10		16.7
	Ten				50		83.3

Note. $N = 60$.

[a] Age: $Mdn = 39.50$ years

[b] Treatments: $Mdn = 4.50$.

Table 2: *Selected Comparisons Between Groups*

				t Test		Mann-Whitney	
Variable	Group	*M*	*SD*	*t*	*p*	*z*	*p*
Baseline Anxiety				0.83	.41	0.81	.42
	Experimental	58.3	6.55				
	Control	56.9	7.12				
Baseline Systolic				1.46	.15	1.40	.16
	Experimental	132	11.8				
	Control	129	8.05				
Baseline Diastolic				1.01	.32	1.09	.28
	Experimental	77.1	10.7				
	Control	79.7	8.98				
Baseline Pulse				1.29	.20	1.05	.29
	Experimental	73.2	7.96				

		M	SD	t	p	z	p
	Control	70.5	8.29				
Baseline Respiration				2.70	.009	2.49	.01
	Experimental	18.5	1.80				
	Control	17.3	1.64				
Pain Level After Treatment				6.60	.001	5.17	.001
	Experimental	2.73	0.91				
	Control	4.57	1.22				
Likelihood of Referring				3.81	.001	3.44	.001
	Experimental	10	0.00				
	Control	9.67	0.48				

Table 3: *Pretest and Posttest Comparisons for Selected Variables*

					Paired *t* Test		Wilcoxon	
Variables	Time	*M*	*SD*	%↓	*t*	*p*	*z*	*p*
Anxiety				8.2	6.74	.001	4.59	.001
	Pretest	58.3	6.55					
	Posttest	53.5	7.25					
Systolic				5.1	5.63	.001	4.33	.001
	Pretest	132	11.8					
	Posttest	126	8.30					
Diastolic				4.2	3.31	.003	3.10	.001
	Pretest	77.1	10.7					
	Posttest	73.8	8.84					
Pulse				9.5	6.83	.001	4.67	.001
	Pretest	73.2	7.96					
	Posttest	66.3	4.17					
Respiration				12.2	6.15	.001	4.02	.001
	Pretest	18.5	1.80					
	Posttest	16.3	1.10					

Note. N = 30.

CHAPTER SIX: DISCUSSION

This DNP project used data collected from 60 patients to determine whether Reiki therapy would significantly reduce anxiety and pain while also improving patient satisfaction when it is administered before a procedure involving facial injections with botulinum toxin. Results demonstrated a significant reduction in anxiety correlating with the current literature results (Baldwin et al., 2017; Birocco et al., 2012; Kurebayashi et al., 2016; Potter, 2017; Vitale & O'Connor, 2006). Though procedural pain was not evaluated as a pre-test post-test measurement, pain perception was significantly less after facial injections in the experimental group.

Vital signs were compared between the experimental and control group for supportive purposes with an intent to show that Reiki therapy may have an effect on reducing sympathetic nervous system response to a perceived threat or stimuli causing anxiety and an increase in pain perception (Woo & Kim, 2016). Significantly lower posttest scores were noted for blood pressure, heart rate, and respiratory rate similar to that of the study conducted by Baldwin et al, 2017 which showed a significant decrease in blood pressure and respiratory rate after Reiki therapy was administered.

Patient satisfaction, NPS score- likely to refer, was found to be better in the experimental group (83% gave a 10) versus the control group (17% gave a nine) however the difference was minimal indicating that while the results demonstrated statistically significant differences in patient satisfaction between the two groups, both had high satisfaction ratings. The PI of this study sought to improve patient satisfaction in this patient population due to the nature of the outpatient setting in which this study was conducted. High patient satisfaction yields loyalty to

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the provider and institution, at large, and therefore focusing on ways to improve or maintain high levels of satisfaction was of interest.

Further evaluation of descriptive statistics demonstrated the median number of previous botulinum toxin treatments was 4.50 with almost 50% of the subjects being Caucasian. According to Asnaani et al., 2010, Caucasian American women are more likely to be diagnosed with anxiety than other ethnicities. Therefore, the prevalence of Caucasian women in this study adds validity to the findings. Additionally, in an effort to avoid capturing anxiety related to a "first time" treatment experience, only those who had received one or more treatments in the past were included in the study. It would be of value to perform a similar evaluation of the effects of Reiki therapy on anxiety with only inexperienced patients to further investigate the potential influence that it may have on anxiety reduction in that specific population.

Sustainability and Financial Considerations

In order to implement this DNP project, the PI utilized previously obtained certification in Reiki therapy. This was obtained over a 3-month period and involved two full weekends of immersion and attunement, each followed by a 21 day off-site daily practice requirement. The cost for each training was approximately $250. In order to implement this intervention in similar outpatient clinics, the organization would have to either recruit an outside trained Reiki medical practitioner or provide the means for internal staff to attend training and attunement. Once the medical provider is certified as a Reiki practitioner, there is no additional cost to the organization for implementation of the intervention.

One treatment session with botulinum toxin produces a profit between $600 and $1200 per hour. Those who choose to receive treatment and who also experience anxiety related to BII often extend treatment times causing schedule delays that lead to unsatisfied patients who choose

not to wait past their appointment time (sometimes almost 30 minutes past), resulting in an additional potential loss in revenue. If one out of every ten patients report BII, and ten botulinum toxin appointments are seen in a day, that is a potential $1200 per day that could be lost either due to procedure avoidance or a loss of a patient based on being unsatisfied due to extended wait times. There is sufficient evidence to prove that organizations with high customer loyalty can command a higher price without losing their profit or market share. The significant outcomes found in this project may also validate adding a service fee as an additional cost for Reiki therapy for those who expresses BII related anxiety.

Limitations

Limitations of the project include a short time period for implementation (3 months). Though the findings were significant, an anxiety reduction by 8% may not be interpreted as impactful overall and with more time, findings could yield a higher decrease in anxiety. Furthermore, there was a threat to external validity because the project used a small convenient sample focused on existing patients only. The urban location of the outpatient clinic caters to a more affluent population and cash paying patients which ultimately may affect anxiety prevalence in clinics that serve a different demographic.

Of note, the study was conducted months after a novel viral outbreak (COVID-19) resulting in a decrease in patient flow possibly due to financial and economic hardship as well as fear or anxiety related to virus contraction. Towards the end of the 3-month implementation period, patient flow increased however the impact on the subjects mental and physical well-being is unknown and could have contributed to higher anxiety scores at baseline.

Strengths of the study include randomization of subjects into experimental and control groups and consistency in the Reiki therapy that was provided to both groups, which was

performed by only one provider on all 60 subjects. Additionally, for added validity and integrity of the study, Reiki therapy was provided to both experimental and controls groups. This could have been a limiting factor in capturing the true impact of Reiki therapy on patient satisfaction, however the subjects were blinded to the knowledge of which group they were randomized into providing validity to both pre-and post-test anxiety evaluations.

Implications for Practice

While the aim of this DNP project was achieved, the process of implementation and evaluation also provided an opportunity to identify areas that require improvement and moments that demonstrated best practice as a way to guide similar projects in the future. The ultimate goal of this project was to implement an evidence-based intervention within a healthcare setting proven to improve healthcare outcomes. A majority of current literature focuses on the impact of Reiki therapy on inpatients; therefore, this project adds to future research needed to evaluate the full impact that Reiki therapy has on various outpatient settings. Further, this project focused on one procedure involving facial injections, and future projects should focus on a wider range of treatments not only within a similar setting but one that translates to other outpatient settings, such as pediatric and adult outpatient medical clinics with procedures that involve the use of a needle.

Nurses are in a position to lead the use of energy therapy integration into the biomedical model by conducting research to support and validate the value of nonpharmacological treatments (Natale, 2010). Watson's Theory of Human Caring supports one's spiritual or sacred dimension as an integral part in nursing because it allows for the formation of a trusting relationship between nurse and patient (Natale, 2010). By providing Reiki therapy, the nurse can facilitate a compassionate connection with the patient through touch and presence (Vitale &

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O'Connor, 2006). Future Reiki studies lead by DNP leaders can help contribute to the growing body of knowledge that exists and supports the use of CAM with standard of care to provide optimal patient outcomes by addressing not only the physiological needs but also the psychological distress seen within patients in the healthcare setting.

CONCLUSION

The results of this DNP project demonstrate how the use of Reiki therapy can reduce anxiety and pain related to the anticipation of a procedure with facial injection. The project targeted women ages 25-65 years of age with expressed feelings of anxiety related to a fear of needles. While future studies are needed to support the findings in this study, the results contribute to an important body of knowledge focused on the effects of Reiki therapy in the outpatient setting. These results and the method of this study may translate to various outpatient clinical settings and various populations (age, gender, procedure and/or condition).

APPENDICES

Appendix A

Severity Measure for Specific Phobia—Adult

Name:_____ Age: _____ Sex: Male ❑ Female ❑ Date:_____

The following questions ask about thoughts, feelings, and behaviors that you may have had in a variety of situations. Please check (✓) the item below that makes you most anxious. <u>Choose only one item and make your ratings based on the situations included in that item.</u>						
❑ Driving, flying, tunnels, bridges, or enclosed spaces	❑ Animals or insects		❑ Heights, storms, or water	❑ Blood, needles, or injections	❑ Choking or vomiting	

Please respond to each item by marking (✓ or x) one box per row. During **the PAST 7 DAYS**, I have…							Clinician Use
		Never	Occasionally	Half of the time	Most of the time	All of the time	Item score
1.	felt moments of sudden terror, fear, or fright in these situations	❑ 0	❑ 1	❑ 2	❑ 3	❑ 4	
2.	felt anxious, worried, or nervous about these situations	❑ 0	❑ 1	❑ 2	❑ 3	❑ 4	
3.	had thoughts of being injured, overcome with fear, or other bad things happening in these situations	❑ 0	❑ 1	❑ 2	❑ 3	❑ 4	
4.	felt a racing heart, sweaty, trouble breathing, faint, or shaky in these situations	❑ 0	❑ 1	❑ 2	❑ 3	❑ 4	
5.	felt tense muscles, felt on edge or restless, or had trouble relaxing in these situations	❑ 0	❑ 1	❑ 2	❑ 3	❑ 4	
6.	avoided, or did not approach or enter, these situations	❑ 0	❑ 1	❑ 2	❑ 3	❑ 4	
7.	moved away from these situations or left them early	❑ 0	❑ 1	❑ 2	❑ 3	❑ 4	
8.	spent a lot of time preparing for, or procrastinating about (i.e., putting off), these situations	❑ 0	❑ 1	❑ 2	❑ 3	❑ 4	
9.	distracted myself to avoid thinking about these situations	❑ 0	❑ 1	❑ 2	❑ 3	❑ 4	
10.	needed help to cope with these situations (e.g., alcohol or medications, superstitious objects, other people)	❑ 0	❑ 1	❑ 2	❑ 3	❑ 4	
	Total/Partial Raw Score:						
	Prorated Total Raw Score: (if 1-2 items left unanswered)						
	Average Total Score:						

Appendix B

<div align="center">

SELF-EVALUATION QUESTIONNAIRE STAI Form Y-1

</div>

Please provide the following information:

Name_____Date_____S_____

Age_____ Gender (*Circle*) **M   F**   T_____

DIRECTIONS:

A number of statements which people have used to describe themselves are given below. Read each statement and then circle the appropriate number to the right of the statement to indicate how you feel *right* now, that is, *at this moment*. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

	NOT AT ALL	SOMEWHAT	MODERATELY SO	VERY MUCH SO
1. I feel calm	1	2	3	4
2. I feel secure	1	2	3	4
3. I am tense	1	2	3	4
4. I feel strained	1	2	3	4
5. I feel at ease	1	2	3	4
6. I feel upset	1	2	3	4
7. I am presently worrying over possible misfortunes	1	2	3	4
8. I feel satisfied	1	2	3	4
9. I feel frightened	1	2	3	4
10. I feel comfortable	1	2	3	4
11. I feel self-confident	1	2	3	4
12. I feel nervous	1	2	3	4
13. I am jittery	1	2	3	4
14. I feel indecisive	1	2	3	4
15. I am relaxed	1	2	3	4
16. I feel content	1	2	3	4
17. I am worried	1	2	3	4
18. I feel confused	1	2	3	4
19. I feel steady	1	2	3	4
20. I feel pleasant	1	2	3	4

STAIP-AD Test Form Y
www.mindgarden.com

Appendix C

Net Promoter® Score (NPS) Template

1. How likely is it that you would recommend this treatment to a friend or colleague?

NOT AT ALL LIKELY   EXTREMELY LIKELY

0	1	2	3	4	5	6	7	8	9	10

CITATION	PURPOSE	SAMPLE /SETTING	METHODS (Design, Intervention, Measures)	RESULTS	DISCUSSION, INTERPRETATION, LIMITATIONS
Baldwin, A.L., Vitale, A., Brownell, E., Kryak, E., & Rand, W. (2017). Effects of reiki on pain, anxiety, and blood pressure, in patients undergoing knee replacement. *Holistic Nursing Practice, 31*(2), 80-89. Doi: 10.1097/HNP.0000 000000000195	To measure the use of Reiki and its effects on reducing pain, stress, and anxiety levels in hospitalized patients undergoing total knee replacement surgery.	*n*= 46

Age: 50-85

Gender: both male and female

Setting: Hospital

Exclusion: Urgent joint replacement surgery cannot read or write in English, history of emotional or psychological or anxiety related diagnosis, and patients who took anxiety reduction medication within two weeks of the procedure. | Design: 3-armed, randomized, blinded protocol

Interventions:

Group 1: 3-4 x 30 min Reiki treatments + SOC throughout hospital stay
Group 2: 3-4 x 30 min Sham Reiki (placebo) + SOC
Group 3: 3-4 x 30 min of quiet time + SOC

For all 3 groups: First treatment was 1 hour before surgery and then 24, 48, & 72 hours after surgery. | ANOVA; data from 48 hours after surgery was treated separately using paired t-test.

Outcome: Pain level: Pain reduction in Reiki group (*p*= 0.003)

Blood pressure: Lower post Reiki treatments (*p*<0.001)

Respiratory Rate: Lower after treatment (*p*=0.008)

Anxiety: Reduced with treatment (*p*=0.004) | The group that received Reiki before and after surgery showed significant findings regarding a reduction in vital signs and anxiety. Furthermore, there was a reduction in pain medication and hospital stay in the Reiki group suggesting fewer complications related to surgery.

Implications for further research: To use model to create and perform a multicenter clinical study with > 150 patients. This study and future studies can help decrease anxiety and pain, as well as pain medication |

			Outcome Measurements: Pain level (0-10 visual analog numeric scale), BP & RR (inpatient monitors), HR (emWavePC), STAI (anxiety measurement survey) Reliability: STAI 0.83-0.92; Other tools used are valid and used as reliable methods in the hospital setting. STAI completed once before treatment and again after the last treatment. BP, HR, RR collected before and after every treatment	Pain medication usage: Reiki group used the lowest amount of pain medication Discharge: The Reiki group had highest percentage of discharges at 48 hours	consumption, leading to better healing and recovery, and patient experience.

CITATION	PURPOSE	SAMPLE /SETTING	METHODS (Design, Intervention, Measures)	RESULTS	DISCUSSION, INTERPRETATION, LIMITATIONS
Vitale, A. & O'Connor (2006). The effect of reiki on pain and anxiety in women with abdominal hysterectomies. *Holistic Nursing Practice, 20*(6), pp. 263-272. Retrieved from: http://insights.ovid/ pubmed?pmid=170 99419	The purpose of the study was to evaluate the effects of Reiki and compare reports of pain and anxiety in women after abdominal hysterectomy.	$n = 22$ Gender: Female Age: 40-73 Setting: Community Medical Center in Toms River, NJ Exclusion: Cancer	Quasi-experimental design Interventions Randomized to control group vs. experimental Experimental group: traditional nursing care plus 3 x (30 min) Reiki nursing intervention at timed intervals during the hospital stay (before surgery, after surgery, and one more during the stay). Control group: Traditional nursing care only "pain protocol" Measures:	Using SPSS Pain reduction in experimental group vs control ($p = 0.04$) Decrease in surgical duration from 50-90 minutes in experimental group ($p = 0.004$) Reduction in anxiety in experimental group ($p = 0.005$).	The study demonstrated favorable effects of Reiki on pain, anxiety, and procedure duration. This study should be replicated with a larger population and with a method of evaluating patient perception or Reiki therapy. The study strengths include a randomization of the subjects, valid tools, and statically significant findings.

| | | | - STAI to measure anxiety
-10-point pain scale | | |
CITATION	PURPOSE	SAMPLE /SETTING	METHODS (Design, Intervention, Measures)	RESULTS	DISCUSSION, INTERPRETATION, LIMITATIONS
Kurebayashi, L.F.S., Turrini, R., Souza, T., Takigushi, R., Kuba, G., & Nagumo, M. (2016). Massage and Reiki used to reduce stress and anxiety: Randomized clinical trial. *REV Latino-Am Enfermagem 24* (e2834)*,* pp. 1-8. Doi: 10.1590/1518-8345.1614.2834.	The purpose of this study is to evaluate the effectiveness of massage and Reiki in the reduction of stress and anxiety.	*n*= 122 Gender: Female (66%) & Male Age: Adult volunteers, Average age 35 Setting: Institute for Integrated and Oriental Therapy in Sao Paulo (Brazil) Inclusion: Score between 37-119 points based on Vasconcelos's Stress Symptom's List (LSS) Exclusion: Pregnancy, sick leave, anxiolytics, and antidepressant	Clinically randomized control test Interventions: Reiki and/or massage - Study group 1: Massage and 10 min rest group - Study group 2: Massage and Reiki - Study group 3: Control group without treatment The sessions took place 2 x per week for a total of 8 sessions. All providers were trained by the Institute for	Using ANOVA, Pearson's chi-squared test, and qualitative variables The difference obtained: LSS- Group 1 and 3 (*p*=0.014) and group 2 and 3 (*p*=0.000) Reduction in Anxiety: IDATE Differences in group 1 and 3 (*p*=0.003) and between group 2 and 3 (*p*=0.000) Physical and psychological	Stress and anxiety were reduced with Reiki Positive symptoms were only seen for the massage and Reiki group (group 2), but were more significant in the Reiki group Limitations: Convenience sample; various degrees of anxiety and stress; interventionalists were students; descriptive statistics were not provided on the participants. This article is pertinent to the research of interest because it further supports the use of Reiki as a positive intervention for the

			Integrated and Oriental Therapy. Measures: - The Trace State Anxiety Inventor (IDATE) - LSS (stress) - Qualitative questionnaire	symptoms: LSS ($p<0.05$)	reduction of anxiety in adults
CITATION	**PURPOSE**	**SAMPLE /SETTING**	**METHODS (Design, Intervention, Measures)**	**RESULTS**	**DISCUSSION, INTERPRETATION, LIMITATIONS**
Potter, P. (2017). Breast biopsy and distress feasibility of testing a reiki intervention. *Journal of Holistic Nursing, 25*(4), pp. 238-248. Doi: 10.1177/089801010 7301618	The purpose of this study was to determine feasibility of testing Reiki on anxiety and depression women undergoing breast biopsy	$n = 35$ Gender: Female Age: Adult (>18 years old); mean age 52 Setting: Regional health care system Recruited via flyers Inclusion: Scheduled for breast biopsy, negative breast CA, speak and read English, cognitively capable of answering study	Randomized control trial Interventions: 1. Reiki therapy 2. Reiki and conventional care group (18) 3. Control (17) (conventional care) group Reiki was given 7 days before and one day within the 7 days after the biopsy.	At baseline: Groups were similar on all distress measures ANOVA showed no significance in group means on distress measures Depression was initially low with no significant change over time ($p = .6200$). Decrease in anxiety in intervention group	Anxiety levels were lower than anticipated. HADS reported higher levels of anxiety with no depression. Study findings suggested that participants did not demonstrate a significant crisis response to breast biopsy. Recruitments rates were not enough to power a larger clinical trial

		instruments and giving informed consent of participation	Treatments were 45-40 min per session All providers were trained by the Institute for Integrated and Oriental Therapy. Measures: - STAI - Center for Epidemiological Studies Depression Scale (CES-D) - Hospital Anxiety and Depression Scale (HADS).	versus control group *(p* = .0011)	Limitations: Most were healthcare workers; may have been less distressed because of familiarity with procedures; half of the women had previous biopsies
CITATION	**PURPOSE**	**SAMPLE /SETTING**	**METHODS (Design, Intervention, Measures)**	**RESULTS**	**DISCUSSION, INTERPRETATION, LIMITATIONS**
Birroco, N., Guillame, C., Storto, S., Ritorto, G., Catino, C., Gir, N., Balestra, L, et al. (2012). The effects of reiki therapy on pain and anxiety in patients attending a day	To investigate the role of Reiki in the management of anxiety, pain, and global wellness in cancer patients.	*n* = 118 Gender: Female (67); male (51) Mean age: 55 years Age: Adult (>18 years old)	Interventions: Before trial, Reiki practitioners received 2 years of training Reiki sessions were offered to patients while in	Using Epi Info software and Windows 2000 for stats VAS (anxiety): reduction in the subgroups treated with Reiki before chemo after 4	Reiki has proven to relax and improve well-being while decreasing the use of pain medications after a procedure. This is the first study that uses trained volunteers to

oncology and infusion services unit. *American Journal of Hospice & Palliative Medicine, 29*(4), pp. 290-294. Doi: 10.117/1049909111 420859		Setting: Medical Oncology Center, San Giovanni Battista Hospital Inclusion: Patients with cancer at any stage receiving chemotherapy	the hospital for chemotherapy. A max of 4 treatments was administered during 4 infusions. Each Reiki session lasted 30 minutes At the beginning and end of each treatment pain and anxiety scores were measured using the Visual Analog Scale (VAS) as well as descriptive intake about perceived feelings during the session	treatments ($p<$ 0.000001) Mean VAS: anxiety decreased ($p=$ 0.0191) Perceptions: 88% relaxation, 70% improved well-being, 45% pain relief, 34% sleep quality, 70% reduced anxiety	administer Reiki therapy This study demonstrates that Reiki has no side effects Limitations: 1/3 of the patients were receiving conventional pain therapy; qualitative measures

REFERENCES

Ab, L.W., Anjum, A & Sajad, A.B. (2014). Blood injury and injection phobia: the neglected one.

    Behavioral Neurology, Wani, A. L., Ara, A., & Bhat, S. A. (2014). Blood injury and

    injection phobia: the neglected one. *Behavioral Neurology*, *2014*, 471340.

    https://doi.org/10.1155/2014/471340

Alligood, M.R. & Tomey, A.M. (2010). Nursing theorists and their work (7th ed.). Maryland

    Heights, MO: Mosby Elsevier

American Association of College of Nursing [AACN] (2006). *The Essentials of Doctoral*

    Education for Advanced Nursing Practice.

    https://www.aacnnursing.org/Portals/42/Publications/DNPEssentials.pdf

America Psychiatric Association [APA]. (2016). *Diagnostic and statistical manual of mental*

    disorders, (5th ed.). Arlington, VA: American Psychiatric Association

Asnaani, A., Richey, J. A., Dimaite, R., Hinton, D. E., & Hofmann, S. G. (2010). A cross-ethnic

    comparison of lifetime prevalence rates of anxiety disorders. *The Journal of nervous and*

    mental disease, *198*(8), 551–555. https://doi.org/10.1097/NMD.0b013e3181ea169f

Ayala, E.S., Meuret, A.E., & Ritz, T. (2009). Treatments for blood-injury-injection phobia: A

    critical review of current evidence. *Journal of Psychiatric Research, 43*(1), pp. 1235-

    1242. https://doi.org/10/1016/j.psychires.2009.04.008

Baldwin, A.L., Vitale, A. Brownell, E., Kryak, E., & Rand, W. (2017). Effects of reiki on pain,

    anxiety, and blood pressure in patients undergoing knee replacement. *Holistic Nursing*

    Practice, 31(2), pp. 80-89. doi: 10.1097/HNP.0000000000000195

Birraco, N., Camilla, G., Storto, S., Ritorto, G., Catino, C., Gir, N., Balestra, L, et al. (2012). The

    effects of reiki therapy on pain and anxiety in patients attending a day oncology and

infusion services unit. *American Journal of Hospice & Palliative Medicine, 29*(4), pp. 290-294. doi: 10.117/1049909111420859

Dyer, N.L., Baldwin, A.L., & Rand, W.L. (2019), A large scale effectiveness trial of Reiki for physical and psychological health. *The Journal of Alternative and Complementary Medicine, 25*(12). https://doi.org/10.1089/acm.2019.0022

Koladycz, R., Fernandez, G., Gray, K., & Marriott, H. (2018). The Net Promoter Score (NPS) for insight into client experiences in sexual and reproductive health clinics. *Global Health, Science and Practice*, *6*(3), 413–424. https://doi.org/10.9745/GHSP-D-18-00068

Kurebayashi, L.F.S., Turrini, R., Souza, T., Takigushi, R., Kuba, G., & Nagumo, M. (2016). Massage and Reiki used to reduce stress and anxiety: Randomized clinical trial. *REV Latino-Am Enfermagem 24* (e2834)*, pp. 1-8. doi: 10.1590/1518-8345.1614.2834.

Lukose, A. (2011). Developing a practice model for Watson's Theory of Caring. *Nursing Science Quarterly, 24*(1), pp. 27-30. doi: 10.1177/0894318410389073

Natale, G.W. (2010). Reconnecting to nursing though Reiki. *Creative Nursing, 16* (4), 171-176. doi: 10.1891/1078-4535.16.4.171

Potter, P. (2017). Breast biopsy and distress feasibility of testing a reiki intervention. *Journal of Holistic Nursing, 25*(4), pp. 238-248. doi: 10.1177/0898010107301618

Prakash B. (2010). Patient satisfaction. *Journal of cutaneous and aesthetic surgery*, *3*(3), 151–155. https://doi.org/10.4103/0974-2077.74491

Rand, W.L. (2019). Reiki in hospitals. Retrieved from: http://reiki.org/articles/reiki-hospitals

Spielberger, C. D., Gorsuch, R. L., Lushene, R., Vagg, P. R., & Jacobs, G. A. (1983). *Manual for the State-Trait Anxiety Inventory*. Palo Alto, CA: Consulting Psychologists Press.

Thrane, S. & Cohen, S.M. (2014). Effect of reiki therapy on pain and anxiety in adults: An in-depth literature review of randomized trials with effect size calculations. *Pain Management Nursing, (15)* 4, 897-908. doi*: 10.1016/j.pmn.2013.008*

Vergo, M.T., Pinkson, B.M., Broglio, K., Zhongze, L., & Tor, T.D. (2017). Immediate symptom relief after first session of massage therapy or reiki in hospitalized patients: a 5-year clinical experience from a rural academic medical center. *Journal of Alternative and Complementary Medicine, 24I(8), 801-808.* doi: 10.1089/acm.2017.0409

Vitale, A. (2014). Initiating a Reiki or CAM program in a healthcare organization developing a business plan. *Holistic Nursing Practice*, *28*(6): 376-380. doi: 10.1097/HNP.0000000000000052

Vitale, A. & O'Connor (2006). The effect of reiki on pain and anxiety in women with abdominal hysterectomies. *Holistic Nursing Practice,20*(6), pp. 263-272. Retrieved from http://www.insights.ovid.com/pubmed?pmid=17099413

Watson, J. (2008). Nursing: the philosophy and science of caring. Boulder CO: University Press of Colorado.

Woo, E., & Kim, Y. K. (2016). Stress, the Autonomic Nervous System, and the Immune-kynurenine Pathway in the Etiology of Depression. *Current neuropharmacology*, *14*(7), 665–673. https://doi.org/10.2174/1570159x14666151208113006