EVIDENCE BASED PRACTICE RECOMMENDATION:
NON-PHARMACOLOGICAL PAIN MANAGEMENT INTERVENTIONS DURING LABOR

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Abstract

The purpose of this thesis is to explore best practices for non-pharmacologic pain management during the birthing process in order to create an educational pamphlet that explains to women their options for pain management during labor and birth. The focus of this project is to provide best practice recommendations to pregnant women so that they can make informed decisions on birth plans and specifically decide what pain management techniques they may use during labor and birth. The goal is to inform all expecting women with necessary information to ensure her knowledge about pain control options during the birthing process and promote a healthy birth experience. The author conducted an extensive literature review that explores outcomes of different pain management techniques and focused on non-pharmacologic pain management techniques to provide women with the resources needed to have an improved labor experience. Based on the evidence in the literature review a pamphlet will be created to describe the various pain management options available to women with explained risks and benefits. The hope is that a well-informed decision on pain management to promote a birthing experience in which coping is enhanced and suffering is reduced.
CHAPTER 1

The purpose of this thesis is to create an educational pamphlet that presents pharmacological and non-pharmacological options for pain management during labor and includes the risks and benefits of each option. The goal of the pamphlet is to aid nurses in educating patients of the options for pain management that is rooted in research and to improve birthing experience by giving women control of the experience and by allowing them to be educated on their options.

Women are reporting low rates of satisfaction with the birthing experience (Adams, Frawlet, Steel, Broom, Sibbritt, 2015). Due to these statistics, health care providers have an obligation to re-evaluate the birth process in the U.S. and look for ways to improve outcomes. One of the ways health providers can improve the birthing process by providing effective methods of managing pain and educating women about their options to increase satisfaction and control in the process. To better understand pain management and the methods used to manage labor pain, it is helpful to have an overview of pain in labor and the methods available to the patient.

“Working With the Pain” versus “Eliminating Pain”

One of the most important concepts when considering pain management is the decision a woman has to make as to whether she wants to work with pain or eliminate pain. There is an important distinction made between working with pain and eliminating pain (Adams, Frawlet, Steel, Broom, Sibbritt, 2015). Working with pain is the idea of a laboring woman having her pain controlled to a manageable level that allows her to labor effectively, but the pain is present in the labor process. Working with the pain is not the elimination of pain. When a woman works with her pain, she still has pain associated with labor; however, the pain is a tolerable level for the
woman and allows her to labor in an efficient and empowering way. Working with pain is to allow women to have a “natural” child birth process in which she uses the pain to labor effectively (Adams, Frawlet, Steel, Broom, Sibbritt, 2015). This may involve uses non-pharmacologic and in some cases, pharmacologic methods to decrease the pain and minimize fatigue associated with very painful labor. The most important aspect of this concept is the presence of pain throughout the labor but at a manageable level.

Eliminating pain is the concept of a woman laboring without any pain or at least at a very minimized level of pain with the emphasis on the absence of pain. This method is for women who hope to have minimal pain. Thus far in research and practice, eliminating pain is only possible with the use of pharmacologic measures such as an epidural or a spinal block. There is a multitude of studies that are beginning to research methods to eliminate pain that do not involve pharmacologic methods such as acupuncture. With any medication, there are side effects associated with eliminating pain through pharmacological measures and women who are leaning towards eliminating pain need to be made aware of the potential consequences. No matter what the route the expectant mother chooses, working with pain or eliminating pain, the expectant mother needs to be educated on the options, and potential side effects of pharmacologic methods, and be supported in her decision.

In understanding pain management, it is important to think through the pathophysiology behind pain. An important theory behind the pathophysiology of pain is the gate control theory. This theory suggests that the sensation of pain is transmitted from the periphery along ascending nerve pathways to the brain (Durham & Chapman, 2014. The gate essentially opens allowing these pain sensations to travel up the nerve pathways. There is a limited number of sensations, however, that can travel up at the same time. If an alternate sensation takes the place of the pain
sensation, it can close the gate control and reduce the pain impulses sent to the brain to be interpreted as pain (Durham & Chapman, 2014). Techniques such as massage, acupressure, temperature therapy, and water therapy may work in this gate control theory to replace those pain sensations and reduce the pain impulses. Techniques such as breathing and relaxation may work to alter the patient’s perception and consciousness of the pain (Durham & Chapman, 2014). Understanding the way pain is interpreted by the brain will help nurses understand which pain management interventions will be effective for the patient.

The Importance of Education of Pain Interventions

In recent years, there have been multiple studies conducted to evaluate the effects of education and pain management planning in reducing the pain experienced during labor. In most medical settings, the anxiety of anticipated pain has been found to negatively impact the actual perception of pain (Lally, Thompson, Macphail, Exley, 2014). Throughout the world, many women are prepared for their pregnancy and labor experiences through communication with friends, sisters, and mothers. Women gain advice and warnings from those surrounding them. This can be seen as a positive support system that they can rely on throughout the process of pregnancy; however, often times those influential women can share negative experiences that heighten the woman’s anxiety surrounding the labor process. All women recognize that the labor process is painful and most have an intense fear of what is to come. It is widely believed that the labor process will be the most painful experience of a woman’s life and suffering is almost inevitable. This belief is held and communicated by the researchers in their articles surrounding labor pain management (Adams, Frawlet, Steel, Broom, Sibbritt, 2015) (Lally, Thompson, Macphail, Exley, 2014).
Research suggests beliefs about pain affect perceived pain during labor, and education on pain management can affect the pain experienced by the woman. One study by Aksoy et al. (2016) suggests statistically significant data that women who expected less pain during labor ended up experiencing less pain. Further, a study conducted by Weisman et al. (2010) revealed that increased labor pain had long lasting effects on the mother’s postpartum mood, maternal perception of the infant, and bonding. This study informs health care professionals that pain management and education on pain management may decrease post-partum depression – especially in women who have multiple risk factors for post-partum depression (Aksoy et al., 2016). An additional study done by Bonapace et al. (2013) investigated the impact that education can have on experienced pain during childbirth. The study used the Bonapace Method to educate women on techniques to use during labor such as controlling the nervous system through breath, use of non-painful stimuli like light massage, and using descending inhibition of pain through hyper stimulation of acupressure trigger points (Bonpace, 2013). The experimental group who received the education on the method revealed significantly lower pain perception for both intensity and unpleasantness during labor (Bonpace, 2013).

**Current Pain Control Options and Significance to Nursing**

Currently, there are several pain management options available to the laboring mother including pharmacologic and non-pharmacologic interventions. Pharmacologic options come in several forms: systemic, local, and regional medications (See Table 1). Systemic analgesia involves action on the whole nervous system and perceptions of pain. Systemic analgesia comes with two options, non-opioid and opioid analgesia. This medication is typically delivered to the laboring mother intravenously or intramuscularly. Systemic medications, often opioids, are typically used during the early stages of labor due to the possible adverse effects that the
medications can have on the baby such as respiratory depression (Durham & Chapman, 2014). Regional anesthesia is a medication used to work on pain in one area of the body. The epidural is a widely popular choice of pain control in the United States. Another option for regional anesthesia is a spinal block. The medications used during the birth will depend on a variety of factors such as the mother’s physiologic condition including her dilation, effacement, vital signs, and preexisting conditions. Medications used will also depend on the baby’s condition including fetal heart sounds, non-stress test results, and any physiologic abnormalities. For example, the risks of an epidural include hypotension, nausea, vomiting, pruritis, respiratory depression, and alterations in fetal heart rate (Durham & Chapman, 2014).

In conjunction with or instead of pharmacologic pain medication, non-pharmacological interventions can be used. Using temperature to control pain, massage, and pressure point stimulation are important strategies that are commonly implemented as non-pharmacologic pain interventions (Adams, Frawlet, Steel, Broom, Sibbritt, 2015). The non-pharmacologic interventions used in the hospital settings will often depend on the hospital and their protocols. In the setting of a birth center or home birth, there may be less restrictions on what is used. Aromatherapy and acupuncture are techniques that are not often used in the hospital setting but may be introduced in the home birth or birthing center. The techniques used depend on what the mother wants out of her delivery experience and the stage of labor. There are few to no side effects to many of the non-pharmacologic interventions and thus there are not many preexisting conditions or physiologic issues that would prevent the laboring mother from using one of the non-pharmacologic interventions (Adams, Frawlet, Steel, Broom, Sibbritt, 2015).
Significance to Nursing

In 2015, there were 3,978,497 births in the United States (CDC, 2017). In almost all of those births, whether in a hospital or birthing center, a nurse was likely present for the labor process. It is important for nurses to be up to date on the best nursing practices suggested by research; especially when those practices may reduce the pain and suffering experienced by the patient. Nurses play a vital role in the labor and delivery process through supporting the laboring mother and acting as an advocate for the patient (Durham & Chapman, 2014). During the labor and delivery process the mother is in need of support from her medical team members. One way the nurse can aid in this is the implementation of pharmacologic and non-pharmacologic pain methods. Nurses can aid their patients before delivery by encouraging them to create a birth plan with the provider to decide which types of medications or non-pharmacologic methods would be best during labor (Lally, Thompson, Macphail, Exley, 2014). The mother will need to establish if she wants to attempt a natural birth without the help of medications. If the mother wants medication, she will need to decide if she wants systemic or regional analgesics. During the labor process, it is important for the nurse to not only advocate for the patient’s choice in pain control, but to advocate for the implementation of those interventions. The nurse can support the patient and her support system by providing the best possible environment for the best possible birthing experience.

Nurses have a duty to responsibly manage the patient’s emotional and physical pain. Nurses need to be informed on the most current research and recommendations about pain management and deliver that education to the patient. Research reveals that education about pain interventions can significantly reduce the anxiety of the laboring mother, reduce pain experienced during labor, and improve the overall maternal satisfaction with the process.
(Bonapace, 2013). A nurse should concern his/herself with the methods to control the pain of the mother to prevent suffering and improve overall outcomes. Nurses should also take an active role during the antepartum period in engaging in an open conversation about the desires for the birthing process and educating the mother on the options available to her for pain control.

**Summary and Conclusion**

Pain is an inevitable part of the labor process; however, suffering can be prevented. Nurses have a duty to work with the health care team to prevent and reduce suffering. The current practices for pain management should be evaluated for their efficacy and maternal/fetal outcomes. New non-pharmacological pain management therapies should be evaluated for the possibility of implementation in the clinical setting. Further, evidence based or informed practice should be implemented, and patients should be educated on the best available therapies. Overall, nurses have the potential to increase satisfaction and outcomes of the birth process making for a healthier labor process.

Women have many pharmacologic and non-pharmacologic options when managing their pain in labor. It is vital that the health care providers on the labor team inform the women of their choices concerning pain management as well as providing as much support as possible. Nurses, being patient educators as well as patient advocates, can play an important role in informing the patient on all of her options for pain and their implications on her health and the child’s health according to research.
CHAPTER 2

To investigate the options of pharmacological and non-pharmacological pain control, the author constructed a literature review from medical and nursing journal articles within the years 2012-2017. The articles reviewed include descriptions of interventions, their efficacy, and health outcomes on the mothers and babies. The author searched through Cochrane database and University of Arizona Library using the terms: “non-pharmacological”, “pain management”, and “during labor”.

**Birthing Ball**

The objective of Leung et al.’s (2013), case series was to evaluate the efficacy of a birth ball exercise program implemented by a physiotherapist. The authors investigated the effects of this program on pain relief, psychological care, and the overall birthing process. There were 203 women who participated in the study and all had been admitted based on spontaneous delivery in the Kwong Wah Hospital in Chine. The women were then divided into two groups: the latent phase labor group (LP) with contraction pains in intervals of 5 to 20 minutes and the no-labor-pain (NLP) group with no pains from contractions but having ruptured membranes. There were six main categories that were assessed: labor pain intensity and frequency, back pain, stress and anxiety levels, and pressure in the lower abdomen (Leung et al., 2013). The variables were all measured before and after the intervention was implemented. The variables were measured according to the self-reported visual analogue scale (VAS) except for the frequency of labor pain, which was measured in minutes (Leung et al., 2013). The baseline data revealed significant differences in back pain between the two groups with the LP group having significantly more back pain than the NLP group.
The intervention included a 30-minute teaching session where the physiotherapist guided the women in several different exercises both individually and in a group setting. After the teaching session was complete, the midwives encouraged the women to continue using the birthing ball to aid in the labor process. The women were allowed pain medication throughout the session as needed (Leung et al., 2013). The analysis of the data revealed that the women experienced a significant decrease in back pain level, stress and anxiety levels, and pressure in the lower abdomen. For medication after the exercise, 6.4% of the women used perthidine, which is a decreased rate, compared to the 8.0% of women in the rest in the labor and delivery unit in that hospital who also used perthidine (Leung et al., 2013). The women who participated were highly satisfied with the intervention. This intervention is a safe and simple intervention that could decrease the need for pharmacologic interventions in many women. The authors admitted to limitations because the study was not a randomized controlled trial (Leung et al., 2013).

A Meta-Analysis of Non-Pharmacologic Techniques Compared to Usual Care

The objective of the study done by Chaillet et al (2014), was to analyze the effects of non-pharmacological pain relief approaches during labor by investigating their effects on endogenous mechanisms of action, maternal and neonate outcomes, and their effects on obstetric interventions. The study is a meta-analysis of randomized controlled trials from various databases that compared non-pharmacologic interventions to usual care, which involves pharmacologic interventions. There are three main types of non-pharmacologic interventions: Gate Control (water immersion, massage, ambulation, and positions), diffuse noxious inhibitory control (acupressure, acupuncture, electrical stimulation, and water injections), and control of higher centers of the central nervous system (relaxation/breathing, guided imagery,
meditation/yoga, hypnosis/self-hypnosis, music, and aromatherapy) (Chaillet et al., 2014). The meta-analysis aimed to cover the efficacy of these types of interventions compared to the efficacy of standard pharmacological interventions such as a pain medication.

The studies showed the non-pharmacological interventions that were in the categories of Gate Control and Diffuse Noxious Inhibitory Control showed an association with reduction of epidural analgesia and higher maternal satisfaction with childbirth meaning there was an appropriate reduction in pain along with a satisfying process for the mother (Chaillet et al., 2014). Usual care showed a relationship with increased chances of receiving an epidural, having a cesarean section birth, instrumental delivery, use of oxytocin, and decreased satisfaction with childbirth (Chaillet et al., 2014). Usual care produced satisfactory pain control; however, there was an increased chance of other complications and a less satisfying birthing experience. The conclusion of these studies were essentially that non-pharmacological interventions that are adjusted to the specific patient according to their needs and visions for the birth process showed to have the best overall results in the labor process including decreased complications and increased satisfaction (Chaillet et al., 2014). The authors reported some risk for bias and quality assessment. One important limitation to the meta-analysis is that the term usual care varies based on the organization. In some instances, usual care is only pharmacological interventions; however, in other instances usual care is a combination between pharmacologic and non-pharmacological interventions. In addition, there were differences in the birth settings that the studies reviewed took place (Chaillet et al., 2014). Further studies should be conducted looking at the combination of non-pharmacologic and pharmacologic interventions and health outcomes.
Temperature Controlled Therapy

The aim of Shirvani and Ganji’s (2013) study was to investigate the efficacy of the use of local cold on the severity of pain during labor and to identify health outcomes of the mother and the neonate related to the use of cold packs. The study was designed as a randomized control trial with 64 pregnant women from two hospitals in Iran. The participants were randomly assigned to one of the two groups: the cold therapy group and the control group. Inclusion criteria for the sample included null parity, term pregnancy with a single fetus, cephalic presentation, and completion of the informed content. Exclusion criteria included administration of analgesic and anesthesia, fetal distress, presence of skin lesions in the areas where the cold therapy was to be applied, and high-risk pregnancy (Shirvani & Ganji 2013).

The intervention consisted of a cold pack being applied to the perineum for 10 minutes in 30-minute intervals during the first phase of labor. During the second phase of labor, the cold pack was additionally placed over the perineum for 5 minutes in 15-minute intervals. The pain was recorded based on a visual analogue. The fetal heart rate, rate of perineal laceration, type of birth, application of oxytocin, and APGAR (the one minutes and five minute tests to determine health of the newborn) score were also recorded. The levels of pain as well as the duration of the labor phases were lower in the cold therapy group. The rate of perineal laceration was higher in the cold therapy group; however, it was not statistically significant. Other differences that did not show statistical significance were fetal heart rate, type of birth, administration of oxytocin, and the APGAR score (Shirvani & Ganji 2013). The authors suggested that a blind placebo group for further investigation. The clinical significance of this study is the application of cold packs is a simple and safe intervention for pain relief. Cold packs can significantly decrease a woman’s labor pains in addition to lowering the duration of labor (Shirvani & Ganji 2013).
In the study conducted by Ganji, Shirvani, Rezaei-Abhavi, and Danesh (2013) the objective was to analyze the effects of the use of warm and cold packs intermittently during labor on the birth outcomes and pain severity. The study was a randomized controlled trial with a total of 64 participants taken from an Iranian hospital through purposive sampling. The participants were randomly allocated to either a control group or an experimental group. The women were included in the study if their age was between 18 to 35 years, had a gestational age of 37 to 42 weeks, had a single fetus birth with cephalic presentation, and were at the beginning of the active phase of labor. Women were left out of the study if they had complicated pregnancies, had taken any pain medication, had any lesions at the sites where the warm and cold packs were to be placed, and if they had any complications during the enrollment in the study (Ganji, Shirvani, Rezaei-Abhavi, & Danesh, 2013). The strict inclusion and exclusion criteria were needed to ensure safety of the mothers involved and ensure the significance of the data collected.

The women in enrolled in the control group simply received the usual care and did not receive any interventions that included the placement of warm or cold packs during labor. The women in the experimental group during the first phase of labor had a warm pack placed on the low back and lower abdomen for 30 minutes. The cold pack was then placed in the same location for ten minutes. This specific process was continued until the second phase of labor (Ganji, Shirvani, Rezaei-Abhavi, & Danesh, 2013). During the second phase of labor the women had the warm and cold packs placed on the perineum. The duration of the placement was also reduced by half; the warm pack was placed for 15 minutes and was followed by the cold pack for five minutes (Ganji, Shirvani, Rezaei-Abhavi, & Danesh, 2013). This cycle continued for the duration of the second phase of labor. The cold and warm packs were not used during the third phase of labor.
The researchers used an observation checklist, the Visual Analogue Scale, and the information form to gather data about the participants in both groups. The information form was used for data collection before the study. The VAS was used to gather data about pain severity during the active phase, acceleration, maximum slope, and deceleration phases. The data was then taken and analyzed by descriptive tests, chi-square, and t-tests (Ganji, Shirvani, Rezaei-Abhavi, & Danesh, 2013). The results of this data analysis showed some significant differences between the two groups. The demographic and obstetric characteristics between the two groups were not significantly different making for a more unbiased study. There was also no significant difference between the baseline pain reports between the two groups. During labor when the intervention was in place, the experimental group reported significantly lower pain than the control group at the end of the acceleration phase, during the maximum slope, the deceleration phase, and the second phase. The first and third phases of labor were shorter in the experimental group than the control. There were no statistically significant differences between the two groups in administration of oxytocin, condition of perineum, type of delivery, and birth outcomes (Ganji, Shirvani, Rezaei-Abhavi, & Danesh, 2013). The mothers in the experimental group did report high and very high satisfaction more frequently than the control. The women in the control group reported dissatisfaction more than the experimental and no mothers reported very high satisfaction (Ganji, Shirvani, Rezaei-Abhavi, & Danesh, 2013). This study is important because the intervention of warm and cold packs is a safe intervention with no adverse effects that can significantly improve pain and satisfaction during the labor process.

**Water Therapy in Labor**

The objective of Lee, Liu, Lu, and Gau’s study (2013) was to measure how effective warm showers are on labor pain and birthing experiences during the first stage of labor. The
study was conducted as a randomized control trial in the maternity ward of a Taipei City regional hospital. There were a total of 80 participants in the study that were divided into groups through block randomization. There were a total of 39 women in the experimental group that received the intervention and 41 in the control group. The pain was assessed using the Visual Analogue Scale (VAS) for pain while the birthing experience was assessed using the Labor Agentry Scale. The fetal heart rate and the cervical dilation were both monitored through the intervention (Lee, Liu, Lu, & Gau’s, 2013). This data combined was used to measure efficacy.

The control group received standard care and did not have the intervention of a shower. The warm shower intervention lasted about 20 minutes and was directed at certain regions of the body. At the beginning of the intervention there was a 5-minute directed shower on the lower back. After those 5 minutes, the women were allowed to direct the shower towards any part of the body that felt best for them. The participants were also encouraged to either sit or stand depending on their comfort. The temperature of the water was maintained at 37 degrees Celsius (Lee, Liu, Lu, & Gau’s, 2013). After the scores were adjusted for obstetric data and demographics, the scores revealed that the experimental group reported lower values on the pain scale than the control group and the experimental group reported a better birthing experience. The researchers find that this data is significant in clinical practice because it is an easy and affordable way to ease the pain of the mother that does not require much instruction (Lee, Liu, Lu, & Gau’s, 2013). The researchers suggest that nurses and midwives continue to implement the water therapy and continue to learn about the therapies of showering. This study may have limitations in applicability due to the women being from one hospital; however, there was a wide range of demographics included in the study. Overall the study revealed an effective method on non-pharmacologic pain relief that can be used easily and safely.
In the quasi-experimental study by Stark (2013), the goal was to evaluate the efficacy of therapeutic showering on coping with labor, the pain experienced during labor, tension, anxiety, and fatigue. The participants were selected from a community hospital in southwest Michigan if they had uncomplicated and singleton pregnancies. There were 24 participants enrolled in the study through convenience sampling. This particular hospital was chosen because the certified nurse midwives (CNM) provide the primary labor management while the doctors are involved only in cases where there are complications or surgeries are needed (Stark, 2013). The CNMs were very supportive of this type of therapy. The primary variables of pain, coping, tension, anxiety, relaxation, and fatigue were measured using a numeric scale. The blood pressure, pulse, temperature, fetal heart tone, and thermal sensation were also recorded. The room and water temperatures were monitored. These measurements were taken in a pretest before the intervention was implemented and in a posttest after the showering. Although there were 24 originally enrolled participants, one participant’s data was not included in the analysis because she had to leave the therapy early due to the urge to push and delivered 20 minutes later.

The intervention included having the women take a 30-minute shower while they remained seated. The women were allowed to choose whichever position they found most comfortable while sitting down. The control group had the usual care without the showering intervention. The results showed that showering during the active phase of labor significantly aided with coping and relaxation while reducing anxiety and tension (Stark, 2013). The differences in pain and fatigue were not statistically significant. Due to the lack of change in pain before and after the intervention, many women sought pain medication after the shower (Stark, 2013). One limitation in this study was the difficulty of assessing fatigue in the women. The participants were unable to accurately answer the questions because they were unsure if
fatigue meant sleepiness or physically tired (Stark, 2013). The intervention is clinically important because it does not show any adverse effects and it can significantly aid in the comfort and coping of women in labor. The study identifies that further research needs to be done to determine if therapeutic showering has benefits in reducing or delaying medical interventions and if it effects birth outcomes (Stark 2013).

**Aromatherapy**

Aromatherapy is the practice of using essential oils from herbs and plants as a complementary technique to elicit desired outcomes. The oils are meant to enhance physical and mental wellbeing. It is a concept that has been around for centuries and is starting to gain more attraction in the medical field. A systematic review conducted by Smith, Collins, and Crowther (2012) investigated the use of aromatherapy in two randomized control trials. The first trial took a group of 513 women and compared standard care to the use of Roman chamomile, clary sage, frankincense, lavender or mandarin essentials oils. The oils were placed in acupressure points, taper, compress, footbath, massage, or a birthing pool. The second trial that was reviewed by the authors took 22 women who were randomized and received regular care with at least an hour in water with either ginger essential oil or lemongrass essential oils.

The trials had some inconclusive data. There was shown to be no differences between the control and the experimental group in overall pain intensity. In the first trial with 513 women, there were less babies admitted to the NICU; however, the data was not statistically significant (Smith, Collins, and Crowther, 2012). There were no differences in spontaneous vaginal delivery, length of labor, and augmentation. This study revealed that there could be potential advantages to the use of aromatherapy in the labor and delivery setting; however, there needs to be more research done in this field in order to make claims about the benefits of essential oils.
and aromatherapy. The types of oils, how they are used, and the maternal view of aromatherapy are all areas that need to be further investigated to truly identify the benefit of aromatherapy in labor.

**Hypnosis/Relaxation**

A systematic review was conducted by Madden, Middleton, Cyna, Matthewson, and Jones (2016) to assess the safety and efficacy of hypnosis for pain control. Hypnosis is used in labor to give women an altered sense of reality in order to cope with pain better during labor. Hypnosis during labor allows the woman the opportunity to remain conscious but have an altered perception that is focused inward and more responsive. Hypnosis can alter the perceptions of contractions and change mood or behavior (Madden et al., 2016). Hypnosis can be used to promote relaxation and dissociate from the current pain and suffering. During labor and before, the woman can be guided through hypnosis by a practitioner who is in person with the laboring mother or over an audio recording. The laboring woman can even learn self-hypnosis that can be implemented on their own later.

The authors reviewed nine randomized control and quasi randomized control trials that included 2954 women. Some of the studies used concurrent pharmacologic and non-pharmacologic pain relief methods with the hypnosis. The placebos in the studies did not use treatment of any kind nor any analgesic drug. Eight of the nine studies used antenatal hypnotherapy (before labor) while one study used hypnotherapy during labor. Most of the studies differed in hypnosis techniques and the timing (Madden et al., 2016).

The results of the studies revealed one significant difference between those who have hypnosis therapy and those who had standard care with no hypnosis. The women in the hypnosis group were less likely overall to use pharmacologic pain relief or analgesics. There were no
significant differences between the two groups in sense of coping with labor, satisfaction with pain relief, spontaneous vaginal birth, and satisfaction in pain relief (Madden et al., 2016). The authors concluded that there is not enough data support to conclude that hypnosis is an effective pain relief method. The authors believe that there is much more work to be done in studying the effects of hypnosis on labor (Madden et al., 2016). There is certainly a need for a larger, well-designed randomized control trial where hypnosis is looked at solely for the purpose of pain relief during labor. Through more research, more conclusive theories can be proposed.

A Meta-Analysis conducted by Smith et al (2016), looked into relaxation techniques and how they compare to no treatment, standard of care, and non-pharmacological forms of pain management in labor or placebo. In total, 11 randomized control trials were included in the review. The relaxation techniques included in the review involved guided imagery, progressive muscle relaxation, breathing techniques, yoga and meditation. The thought behind how relaxation works in controlling pain involves relaxation and guided imagery are two coping strategies that may reduce pain by interrupting the pain signals as they make their way to the brain, limit the attention given to the pain, stimulate the release of endorphins and help the patient from forming pain-exacerbating thoughts. The outcomes examined included pain intensity, maternal perception of pain (memories of pain at follow-up), satisfaction with pain relief, satisfaction with childbirth, assisted vaginal delivery, caesarean delivery rates, APGAR scores, length of labor, use of pharmacological methods of pain relief, length of labor, and augmentation with oxytocin.

The studies revealed that relaxation decreased pain intensity during the latent and active phases of labor (mean difference (MD) -1.25, 95% confidence interval (CI) -1.97 to -0.53, 40 women). Additionally, there was an increased satisfaction with pain relief (RR 8.00, 95% CI
1.10 to 58.19, one trial, 40 women) (Smith et al, 2016). In two randomized trial studies there was a decreased number of assisted vaginal deliveries for those women in the relaxation group. For caesarean sections, however, there was only one trial that reported a lower rate in caesarean delivery while others reported no difference. There was no difference in APGAR scores, length of labor, augmentation with oxytocin and use of pharmacological methods of pain relief. The authors recognize that there is a limited amount of data available surrounding relaxation modalities; however, those they investigated showed relaxation modalities may be helpful for pain management (Smith et al., 2016).

**Massage and Reflexology**

Smith, Levett, Collins, and Jones (2011) conducted a systematic review that revealed six randomized controlled trials comparing manual healing methods such as reflexology and massage with standard care, no treatment, and other non-pharmacologic interventions. Reflexology is the practice of gentle manipulation or pressing on certain parts of the foot to cause an effect elsewhere in the body. Massage is a manipulation of soft tissues to relieve pain and produce an anxiolytic effect. Overall, there was less pain reported for those who had massage therapy and labor pain was significantly reduced in one trial where massage was compared with music therapy. Another trial compared the use of massage to typical care and found that anxiety was significantly reduced during the first stage of labor.

The most important conclusion from this is that labor is an intense and anxiety producing experience. Massage can effectively reduce tension and stress for the woman during the labor process thus reducing pain. Massage can improve the woman’s emotional experience overall in labor (Smith et al., 2011).
Acupuncture/Acupressure

Acupuncture and acupressure as a pain relief method has been widely researched in recent years. Smith et al. (2013) compiled randomized controlled trials that compared acupuncture and acupressure with placebo, no treatment, and other non-pharmacological forms of pain management in labor. A meta-analysis was done to explore pain intensity, relation, caesarean section rate, augmentation with oxytocin, length of labor, and anxiety associated with labor. There were a total of 13 articles reviewed including nine involving acupuncture and four involving acupressure.

A unique component of the studies included in this meta-analysis is that many studies included women in labor who were also high-risk, preterm, or labor was induced. Smith et al. (2013) looked at both the effects of the interventions (pain intensity, satisfaction with pain relief, sense of control, satisfaction with childbirth, and use of pharmacological pain relief) and the safety of the interventions (negative interactions on mother/baby, breastfeeding, assisted vaginal birth, caesarean sections, side effects, admission to special care unit/NICU, APGAR score, poor infant outcomes at long-term follow-up). Some secondary outcomes that were investigated included cost, length of labor, mode of delivery, need for augmentation, perineal trauma, maternal blood loss, relaxation, and anxiety. Researchers found articles in the Cochrane Central Register of Controlled Trials, MEDLINE, hand searches of 30 journals and major conferences, and weekly current awareness email alerts from other journals.

The researchers pulled data and resolved discrepancies amongst themselves with the assist of a fourth person at times. For each article, they looked at the location, participants, methods of trial, benefits, adverse effects, and any information regarding the outcomes outlined above. The data was put through statistical analysis using the Review Manager Software.
The results suggest that women that had acupuncture during labor experienced less pain than those without treatment (P=0.018) but had no difference in pain compared to those women who received standard care or had the placebo control. As far as satisfaction, women who received acupuncture had more satisfaction than those who had placebo control but had no difference in satisfaction compared to those women receiving standard care (Smith et al., 2013). Studies additionally found that women were less likely to use pharmacologic analgesia when receiving acupuncture instead of placebo control or standard care. There was no difference in the rate of caesarean sections in women who had acupuncture compared to those who did not; however, there were less instrumental deliveries in the group that received acupuncture compared to those who had standard care. There were very little differences in APGAR scores of babies whose mothers received acupuncture.

The results for acupressure revealed that women had reduced pain intensity compared to those who had placebo control, combined control (placebo and no treatment); however, there was no difference in satisfaction or use of pharmacological analgesia with childbirth between those who received acupressure and those who did not. The caesarean section rates in women who received acupressure were less than those in the combined control group (receiving placebo and no treatment). Concerning assisted vaginal birth, and APGAR scores there was no difference. Anxiety (MD -1.40, 95% CI -2.51 to -0.29, one trial, 75 women) and length of labor SMD -1.06, 95% CI -1.74 to -0.38, two trials, 195 women) were decreased in the groups receiving acupressure compared to the placebo control groups.

Overall, from the authors’ suggestions it seems that there is not enough high quality evidence to make clinical claims about acupuncture or acupressure. There was a lack of ability to blind in the acupuncture trials. There is a need for more randomized control trials using these
methods. The risk of bias was found to be high in these studies and thus, there cannot be implications for practice concluded about acupuncture and acupressure until further high quality research is done.

**Summary**

Chapter two presents a comprehensive review of non-pharmacological interventions to manage the pain that experienced during labor (See Appendix A). An important phenomenon that was mentioned in several studies done on labor pain mentions the two methods of labor: “eliminating pain” and “working with pain”. The studies above that investigated specific interventions on pain relief frequently mentioned that there was no significant difference in severity of pain between the control and experimental groups. In addition, the experimental groups that received the specific pain intervention still received pain medication such as an epidural after the intervention. These results may be due to the fact that some women desire to “eliminate” the pain associated with labor and thus do not find those non-pharmacologic interventions to be adequate. There are women who desire to “work with pain” meaning to still have pain but in a more manageable range in which they feel that they could continue. These women may find more satisfaction or efficacy in the non-pharmacologic interventions. The difference between these two phenomena may be an important factor when reading these studies and evaluating their clinical importance. These phenomena should possibly guide further research in the future.

The studies above include important considerations for nurses when designing care plans for women in labor. One of the most important results from these studies is that care providers should make informed decisions when providing care to the laboring mothers. Each delivery presents with different complications and considerations. There are some mothers that may want
to “eliminate pain” while others may want to “work with the pain”. The caregiver should plan and implement interventions based off of those considerations. Another important result of the studies is the lack of adverse effects from the specific non-pharmacological interventions. Many of the non-pharmacological interventions designed to relieve labor pain are simple, inexpensive interventions that do not cause harm to the mothers and can often make them more comfortable and satisfied with the birthing process. Nurses and other labor caregivers ought to inform themselves of the various safe and simple interventions that can improve the quality of the birthing process and provide maximal comfort. It is often appropriate to use the non-pharmacological interventions such as the birth ball, showers, and warm/cold pack for in mothers who are or are not receiving pain medication. The education of nurses on these various non-pharmacological and pharmacological interventions and their respective outcomes could significantly improve labor experiences and birth outcomes.
CHAPTER 3

Based on the evidence present in Chapter two the author proposes the development of an evidence based educational pamphlet that will inform women about the various options available for pain control during labor in an attempt to lower pain experienced, increase satisfaction with the birthing process, and improve post-partum outcomes. Chapter three will describe the evidence based recommendations for non-pharmacological pain management that will be included in the educational pamphlet.

Evidence Informed Practice Recommendation

The purpose of this thesis was to create an evidence-based educational pamphlet to prepare antepartum or intrapartum women for the labor process and the non-pharmacological pain management interventions that are available to the woman during the laboring process. This chapter will explain the detail surrounding the proposed educational pamphlet and training to implement this practice. With this best practice protocol, the hope is women may have better labor outcomes and nurses will be better prepared to implement pain management interventions for women during labor.

The literature reviewed in Chapter Three detailed the various available non-pharmacological interventions available to women during the labor process and the risks and benefits related to these interventions (See Appendix A). Through research, the author noted that women often have less than satisfactory labor experiences (Bonapace, 2013). These experiences are mainly related to lack of pain control and women feeling a loss of control over their labor experience. It is important for health care providers to educate women who are planning to be pregnant or are currently pregnant about what options are available for pain control. The review of the literature found five evidence based non-pharmacological pain management interventions...
for the laboring patient. The decision on which pain management intervention the mother will choose depends on what the mother expects for her pain during labor and how much she wants to control her pain. When women are given these evidence based pain interventions, they feel more control and can have improved birth outcomes overall (Lally, Thomson, Macphail, Exley, 2014).

**Birthing Ball**

The first recommendation supported by the evidence is the use of a birthing ball during labor. The research supports having the laboring women undergo an instructional lesson on how to use the ball and the different variations in postures that can be used. Following the lesson, women should be allow to have access to the birthing ball throughout their labor process as long as it is safe (Leung et al., 2013). This recommendation is shown to decreased pain in the lower back and abdomen while reducing the stress and tension that may be experienced during the patient during labor (Leung et al., 2013).

**Thermal Therapy**

The second recommendation supported by evidence reviewed by the author is the use of intermittent thermal therapy during labor. The intervention could be done using both cold and hot packs or only cold packs. Research support the use of warm packs for 30 minutes on lower back and lower abdomen and then 10 minutes of cold packs in same location during first phase of labor and in halved time intervals during second phase. The research also supports the use of cold packs only for 10 minutes in 30 minute intervals during first phase of labor and in halved time intervals during second phase. The research revealed that pain and length of labor were both reduced when women used hot and cold or only cold packs intermittently during the first and third stages of labor (Shirvani & Ganji, 2013; Gangi, Shirvani, Rezaei-Abhavi, & Danesh, 2013). Both of the research reviewed were Level II evidence comprised of randomized control trials.
The author suggests the use of hot and cold packs for 5 minute intervals every 15 minutes during the first and second phases of labor.

**Hydrotherapy**

The second recommendation supported by evidence reviewed by the author is use of hydrotherapy through therapeutic showering. In two randomized control trials, using the benefits of warm water intermittently through directing water flow to the lower back and perineum reduced pain and improved the overall birthing experience for the laboring woman. The research supports 20-30 minute shower in position of choice (seated or standing) with warm water directed in towards lower back for 5 minutes and then directed towards desired area for the rest of the time. Use of showers is an inexpensive intervention that can relax the laboring mother and allow her to intervene in her pain. The woman has control to deliver to herself a pain reducing intervention. The author suggests that in hospitals with showers, nurses should encourage women to get into the shower when possible (before epidural is placed and before the active phase of labor*). The nurse should support the woman in choosing where to direct the water flow and if she desires to be seated or standing for the duration of the intervention. This is an opportunity for the woman to have control over pain management and play an active role in reducing her pain.

**Massage**

The third recommendation for pain management is use of massage. In a level I systematic review, massage was found to be method in reducing stress and tension. The author recognizes that tension and stress are key factors in overall pain experienced by the laboring woman (Smith, Levett, Collins, and Jones, 2016). The use of massage during labor can influence the woman’s perception of support during the laboring process. In order for this intervention to work, the woman needs some support person to intervene through massage. This person could be the nurse
but it could also be a partner, parent, sibling, or friend. Through massage, the woman will feel supported and relaxed and in turn reducing tension and pain. The author recommends the use of massage by a support person during all phases of labor.

Relaxation Techniques

The fifth and final recommendation for pain management is relaxation techniques. The purpose of relaxation is to disrupt the pattern of thinking that occurs during pain. The hope with relaxation techniques is to calm the mind and focus on breathing or imagery instead of the pain. In the systematic review by Smith et al (2013), it was found that relaxation techniques including guided imagery, meditation, breathing, and progressive muscle relaxation can improve pain, reduce labor time, and reduce the rate of assisted vaginal deliveries. Using support from the Level I Systematic Review by Smith et al. (2013), the author recommends that relaxation techniques such as guided imagery, meditation, breathing, and progressive muscle relaxation be used in the labor setting. The nurse is able to learn these techniques herself and teach them to the woman during labor. In addition, the woman can learn these ahead of time and implement them with support from the labor nurse.

Education

With these recommendations in mind, it is important to note that research shows that education plays an important role in using these interventions. The woman must be aware of these interventions and the nurse must advocate for the use of them. Education is supported by a variety of articles reviewed by the author. Thus, the author recommends that the nurse plays a role in educating women about non-pharmacological pain management interventions available to them. In education, the hope is women will be able to implement these interventions more
frequently, nurses will be more able to support the woman in these choices, and suffering from pain will be minimized allowing women to have an overall better labor experience.

**Summary**

To summarize, the author described four significant evidence based recommendations for controlling pain using non-pharmacological interventions. These recommendations include the use of hot and cold packs, therapeutic showering, massage, and relaxation techniques. These recommendations are important to communicate to the patient. Education is the method of transferring these interventions to the patients and allowing them to be an active stakeholder in their care planning. Child birth can be a foreign and confusing experience for some women, it is the responsibility of the health care providers to give the women the tools needed to have a satisfactory birth experience that causes minimal suffering as a result from pain. Each woman has a right to plan their birth experience and decide how much pharmacologic interventions they do or do not want. From these recommendations, the author proposes that an educational pamphlet be developed to explain the options available to women and devise a plan to implement the pamphlet in the labor care settings.
CHAPTER 4

Implementation and Evaluation

The first portion of this chapter will be focused on implementing an educational pamphlet about non-pharmacological pain management interventions. This research presented in the thesis reveals that education about pain relief options and discussions about a pain management plan are best to be put in place before the laboring process. Education about pain and pain relief interventions would aid in closing the gap in decision making about pain relief. One study suggests that a birth plan be made to assist women in these decisions (Lally, Thomson, Macphail, Exley, 2014). One major component of this birth plan is education about the options for pain control and the risks or benefits of these options.

Due to the research, the author suggests an evidence-based practice of administering an educational pamphlet (See Appendix A) that explains the non-pharmacologic options for labor pain. This pamphlet will be distributed to women and explained before the onset of labor whether it is in the doctor’s office, in triage for pregnancy complications, or during childbirth education. The education should be completed by the nurses due to the fact that these pain management interventions will be implemented by the nurses themselves during labor. The challenge arises when the patient does not receive this information prior to the onset of labor. A woman who is in active labor and experiencing pain may not be in the appropriate mindset to read through a pamphlet. To resolve this issue, the author suggests that the labor and delivery nurse uses nursing judgement to evaluate if the patient is at an appropriate place in labor to receive information about the pain management options. If the patient is laboring well and can tolerate some education, the nurse will give the patient the pamphlet of the available non-pharmacologic interventions available during labor. The nurse is the leader in this evidence
based practice because the nurse is in on the front lines of advocating for the patient and assessing the patient’s pain and relief measures.

**Implementation**

**Making an Effective Pamphlet**

In creating an educational pamphlet, there are a few principles that must be considered in order to create an appropriate pamphlet that facilitates the most learning for the population. These principles include text coherence, integration of text and pictures, and highlighting important feature of text (Whittingham, Ruiter, Castermans, Huibers, Kok, 2008). Text coherence is the process of having new information make a connection with past knowledge. It is important for there to be a logical and consistent structure of a text on a macro and micro level. On the macro level, the text should be in a structure that is clear and easy to follow. On the micro-level, the text should have coherent sentences that connect with one another. Illustrations are a part of the visual subsystem that processes information. The dual code theory states that connections are best made when there is corresponding text and pictures and it increases recollection and comprehension of the information (Whittingham, Ruiter, Castermans, Huibers, Kok, 2008). Emphasis on text should be made to allow emphasis from the regular text by means of different size and/or font.

Health Literacy is another component to be taken into consideration when creating the educational pamphlet. To ensure readability to the highest amount of people the text should follow the Plain Language Guidelines set out by the National Institutes of Health (NIH 2013). First it is important to put the main subject at the beginning. For this pamphlet, the subject of “Non-Pharmacological Pain Control During Labor” should be clearly presented in the beginning of the pamphlet. Additionally, a summary about the information should be at the introduction of
the document. The language used throughout the pamphlet should be easily read and understood by the readers; therefore, medical jargon should be decreased or eliminated. In the example of the subject, “Non-pharmacological Pain Control During Labor” may be better understood by saying, “Pain Control During Labor Without Medication”. If particular words that may be unfamiliar to some readers cannot be eliminated then it is best to include the definition. The pamphlet should be constructed in a way to allow user friendly prompts that allow for quick reading. In the visual aspect of text, typography should promote readability. It will be important to have the text of the pamphlet edited and have a pilot group give feedback about readability understandability. The importance, according to the National Institutes of Health, is on the ability for the reader to understand the information provided (NIH, 2017).

Translation of Practice Recommendations

When applying research into practice, it is important to carefully transition into the translation phase. This is the period of time where the applicability of the research is assessed. The practices are implemented, evaluated, and communicated within and outside of the designated organization (Dearholt & Dang, 2012). In order to translate the recommendations to practice, a careful procedure must be followed to ensure communication among all stakeholders and best possible outcomes.

Secure Resources

The first step according to Dearholt and Dang (2012) is to secure support from decision makers. Decision makers should be sought out to assess the feasibility of the intervention on the unit. For example, on a labor and delivery unit, the unit supervisor along with the unit managers should be consulted in determining if this will be an effective intervention and what the risks versus benefits are. The following questions should be asked: Would this change improve clinical outcomes? Would this change improve patient and nurse satisfaction? Would this change
or reduce the cost of care for patients? Within this question printing costs and ability to have pamphlets mass printed would need to be taken into consideration. Finally, would this change or improve unit operations? (Dearholt & Dang, 2012).

During the first six months of implementing this evidence-based educational pamphlet to a hospital setting, a nurse who is passionate about this subject area should be identified. The implementation of this educational pamphlet could be presented during monthly staff meetings and presented as an opportunity for nurses to be involved in a “Non-Pharmacological Pain Management” committee. The committee would be comprised of labor and delivery nurses who are passionate about implementing this pamphlet. The intervention should include the assistance of the nurses or educators that are in charge of the childbirth education classes. In order to achieve continuity of care, nurses throughout the spectrum of involvement in the patient’s care should be involved in implementing this pamphlet. It may be useful to include the OB/GYN and other provider (Midwife) offices that deliver at the hospital so that women can begin receiving this education during their office visits.

The committee will assist in determining what is needed to achieve success with the use of this pamphlet and educating nurses in the non-pharmacological interventions presented and how to educate women on their options. Included in this should be education plans and plans for communication with those affected by this implementation (pregnant/laboring women, nurses). Additionally, the team will need to assess if the unit is ready for change and if there is room in the budget to make such a change (John Hopkins, 2015).

**Create an implementation plan.** During the creation of the implementation, the committee members must be submersed in education surrounding the pamphlet. Additionally, resources that are needed for the pamphlet to have success should be obtained. Resources such as
birthing balls that are needed for the interventions should be ordered in appropriate quantity to have available for all those women desiring such an intervention. The educational plan for the nurses should be created during this time to ensure that education is tailored to the unit specific nurses. Decisions such as introduction of the education and communication should be made. There must be conversation about where this intervention is most appropriate. Is it feasible for pamphlets to be given when women are in triage? Is it appropriate to educate women during early labor or before an induction? Should the pamphlet distribution be limited to the childbirth education classes offered at the hospital? How can OB/GYN doctors be involved in this process during the pregnant women’s visits? These are all important questions that must be answered by the committee in creating this implementation plan.

**Implement Action Plan**

**Communicate plan to all team members/stake-holders and A Leader for Change.** To implement the intervention, the committee should educate the nurses that will be directly involved in the distribution of the pamphlets and with the use of non-pharmacological interventions that are presented in the pamphlet. The committee should begin by introducing the intervention through a staff meeting and sending a follow-up reminder to ensure clear communication (Dearholt & Dang, 2012). It is important for nurses involved in the education to know who is in charge of the change (Dearholt & Dang, 2012). The nurses involved in the implementation should know when the education will take place through in-service trainings and they must be aware of the resources available (where the pamphlets are located, where the birthing balls are) (Dearholt & Dang, 2012).

To ensure continuity, the evidence-based practice should be discussed across the OB/GYN team at the given facility. The intervention can be applied in a clinic, a hospital, or a
b birthing center. If the pamphlet is distributed at a clinic, then the practice should be reviewed with the hospital that the clinic works with during deliveries. Both the labor and delivery nurses as well as the post-partum nurses should be aware of the intervention. The providers must additionally be a part of the pain management discussion and talk with patients about the pamphlet and the benefits of implementing these interventions. Providers should allow the nurse to discuss this with the patient and encourage the patient in making a pain management birthing plan with the nurse. The author suggests that the pamphlet be discussed with the patient during the first appointment of the third trimester. If the team is anticipating an earlier delivery due to complications, the pamphlet should be given earlier in pregnancy at the nurse’s discretion.

The pamphlet will be available as a hard copy but can be electronically available to the patient if requested. At the beginning of the conversation, the nurse should explain to the patient what is expected for pain in labor. Additionally, the nurse should explain the difference between eliminating pain and minimizing pain as presented in the pamphlet. When first giving the patient the pamphlet, it is up to the nurse to review the different evidence based interventions for pain management. The nurse should explain the theory behind each intervention, the risks and benefits, and the proper use of the intervention. The nurse should then encourage the patient to think about her pain management plan including evaluating her values and beliefs surrounding labor, reviewing the pamphlet on her own, and beginning to create an individual pain management plan.

**Pilot test the change.** To gain insight into the efficacy of this educational pamphlet, a pilot test would need to occur. The pilot test would give insight into how the patient population received the education and the applicability in the hospital setting. A good starting place for a pilot study could be a childbirth education class at a local hospital led by a seasoned nurse. The
nurse could introduce this pamphlet to the women in the class and encourage women to make a pain management plan before going into labor. The women would then be evaluated post-partum with specific surveys that will be discussed in the following section.

**Evaluate Outcomes**

**Measure outcomes.** In order to evaluate the outcomes of the pilot study, both qualitative and quantitative data will need to be collected about the birth process. The patient’s in the pilot will need to be followed from the childbirth education class to the post-partum unit. In order to do this with ease, a non-pharmacological pain management intervention flow sheet will be created as a part of the documentation flow sheet. Upon intake, the labor and delivery nurse will ask the patient if she received the pamphlet. If the answer is no, the nurse could introduce the pamphlet if the woman seems to be tolerant of education. Following delivery, 24 hours, if the woman has received education, the post-partum nurse will distribute a survey to ask the patient about her pain management experience during labor. The survey will ask the women a few simple questions about satisfaction with the birth process, pain control, their understanding, and their comfortability with these interventions (See Appendix B). Additionally, labor and delivery nurses will need to answer a short survey as a required portion of their documentation following the delivery. The survey will include questions about their education, use of the pamphlet, conversation about pain control, barriers, and comfortability (See Appendix C). In order to gauge the applicability and efficacy of the educational pamphlet, outcomes will be analyzed through both surveys through auditing the electronic health record.

**Disseminate Outcomes to Stakeholders**

*After evaluation of outcomes and processes report to decision makers/stakeholders.*

Once the outcomes have been analyzed by the committee, the information should be given to the rest of the decision makers such as the unit supervisors and unit managers. The committee should
then identify the next steps that are needed in light of the outcomes. There may be a need for a different action plan or an alteration in the education.

The outcomes of the implementation should additionally be shared through a staff meeting with the rest of the unit including those nurses that were directly involved in the implementation. This can allow for nurses to continue to be part of this intervention and see the importance of the work being done within this realm (Dearholt & Dang, 2012). It may be beneficial to share the information gained from the implementation with professional organizations through conferences (Dearholt & Dang, 2012). The dissemination of the outcomes is crucial for research to gain traction and make a difference in the clinical setting.

**Strengths and Limitations**

The strengths of this thesis include a wide variety of research articles, high quality evidence, and focused research. This thesis reviewed many research articles that included randomized control trials, systematic reviews, meta-analyses, and qualitative studies. The thesis additionally included high quality evidence such as systematics reviews. Some of the research was lower quality; however, that evidence was not included in the recommendations. The research included in the literature review was focused on non-pharmacological interventions to reduce pain. The strengths made for a strong literature review and thus, strong recommendations.

The limitations of this thesis include use of lower quality research in the literature review and many different interventions with only one or two research articles supporting each. Some of the research reviewed by the thesis were of low quality research. For some interventions, there was only one article to support and that article was low quality research. To create a strong research basis, it would have been useful to have multiple articles for each intervention or potentially only have a few interventions with many research articles supporting it.
Summary

The purpose of this thesis was to develop a best practice educational pamphlet about non-pharmacological pain management interventions during labor. Current research reveals a few interventions that are effective in reducing pain, aiding in coping, and reducing tension and anxiety. There are few to no risk factors associated with these interventions. There is research that suggests that education is both needed and desired in the realm of pain management for pregnant women. Education is a key component in accessibility and comfortability in implementing these interventions in the labor and delivery setting. The educational pamphlet, tailored to the population’s learning needs, can be an effective mode in distributing knowledge to pregnant women about evidence informed options in non-pharmacological pain management. Education amongst the nurses and use of specific nurse committees can lead to better results in implementation. The evaluation process would allow for women to identify if the education was effective in implementing these interventions and evaluating if the education pamphlet and use of those recommended interventions were impactful in the woman’s birth experience. The evaluation process will additionally identify the impact that the education had on the nurses’ care. Overall, the implementation of the best-practice education pamphlet will serve to educate women and thus empower them to have control over their birth experience and hopefully improve birth experiences while decreasing suffering related to pain.
### Appendix A

**Table of Evidence from Chapter 2 & Used to Inform Chapter 3**

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Support</th>
<th>References</th>
<th>Level of Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hot/Cold Therapy</td>
<td>When women applied cold packs to the perineum during the first and second phases of labor for 5 minutes in 15 minute intervals, the pain and length of labor were lowered. When women placed intermittent cold and hot packs to perineum in defined intervals, the women experienced lower pain during the first and third phases of labor. Additionally the length of the first and third phase of labor was shorter.</td>
<td>Shirvani &amp; Ganji, 2013</td>
<td>Level II</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gangi, Shirvani, Rezaei-Abhavi, &amp; Danesh, 2013</td>
<td></td>
</tr>
<tr>
<td>Water Therapy: Therapeutic showering</td>
<td>In women who underwent therapeutic showering directed at the lower back and any other</td>
<td>Lee, Liu, Lu, Gau, 2013</td>
<td>Level II</td>
</tr>
<tr>
<td>Method</td>
<td>Description</td>
<td>Source</td>
<td>Level</td>
</tr>
<tr>
<td>-----------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>---------------------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>Massage</td>
<td>Massage during labor by some type of birth assistant can reduce labor pain and promote relaxation while reducing tension and stress produced by labor.</td>
<td>Smith, Levett, Collins, and Jones, 2006</td>
<td>Level I</td>
</tr>
<tr>
<td>Relaxation</td>
<td>Relaxation techniques can decrease pain, improve labor time, and may decrease rate of assisted vaginal deliveries.</td>
<td>Smith et al, 2013</td>
<td>Level I</td>
</tr>
<tr>
<td>Seated showering</td>
<td>Seated showering for 30 minute intervals significantly aided in coping, relaxation, and reducing anxiety and tension. These concepts are important in reducing pain and improving birth experience.</td>
<td>Stark, 2013</td>
<td>Level II</td>
</tr>
<tr>
<td>Education</td>
<td>Research suggests that education about non-pharmacological pain management interventions is a key component to women accessing and implementing these interventions. If women are educated on these interventions, they have the capability to have a form of control over the delivery and potentially improve their birth experience.</td>
<td>Lally, Thompson, Macphail, Exley, 2014</td>
<td>Level VI</td>
</tr>
</tbody>
</table>
Appendix B

Survey for Patients

1. How much pain control did you have during labor?
   None  Not much  Somewhat  Adequate  A lot

2. How satisfied were you with your birth experience?
   Not at all satisfied  A little satisfied  Somewhat satisfied  Satisfied  Highly Satisfied

3. Did you understand your pain management options?
   None  Not much  Somewhat  Understood  A lot

4. Did you feel comfortable using these pain control options?
   None  Not much  Somewhat  Adequate  A lot
Appendix C

Survey for Nurses

1. Did you feel like you received enough education about the use of the pamphlet?
   None  Not much  Somewhat  Adequate  A lot

2. Were you able to use the pamphlet with your patient?
   Yes  No

3. Were you able to have a conversation about the pamphlet with the patient?
   Yes  No

4. Were you comfortable with implementing the interventions in the pamphlet?
   None  Not much  Somewhat  Adequate  A lot

5. Please describe some barriers facing the implementation of the pamphlet and interventions
Appendix D

Educational Pamphlet

**Showering**

A warm shower during your labor process, if your doctor permits, can:

- Improve labor time
- Improve satisfaction
- Reduce anxiety, tension
- Aid in coping

- 20-30 minute warm shower
- Direct water to lower back for 5 minutes
- For the remainder of time, direct the water toward any area that feels best
- Seated or standing
- Choose the position that feels best

**Massage**

Massage can:

- Promote relaxation
- Reduce tension and stress

How to use:

- Can be done by support person or nurse
- Can be whichever technique you desire: deep tissue or effleurage (deep massage or light massage)

**Relaxation**

Relaxation can:

- Reduce pain
- Improve labor time
- Decrease assisted deliveries

How to use:

- Can be done by support person or nurse
- Use techniques the following techniques: guided imagery, progressive muscle relaxation, deep breathing, yoga, meditation
Appendix D Continued

Eliminating Pain Vs. Working With Pain

Eliminating Pain
- The desire to experience little to no pain during labor
- Medications, such as an epidural, is your best main pain control option
- Non-medication techniques can be a good supplement to relax and cope - especially in early labor

Working With Pain
- Desire to experience the natural pains of birth and use that pain as a motivating factor
- Non-Medication techniques are your best primary pain control option
- Medications can be used as a supplement to decrease suffering

Birthing Ball
A birthing ball is a large inflatable ball that can be used to:
- Reduce pain in the lower back and abdomen
- Lower anxiety and tension

Picture of woman using birthing ball

How to use:
- The hospital will have birthing balls available to you or you may bring your own
- The nurse can assist you in finding positions on the ball that are best for your body

Hot & Cold packs

Use of Cold Packs Only:
- Instant cold packs (can be found on labor unit)
- Reduces pain & labor length
- During 1st Phase of Labor: Place on perineum (area between the vagina and anus) for 10 minutes in 30 minute intervals
- During 2nd Phase of Labor: Place on perineum for 5 minutes in 15 minute intervals

Use of Warm & Cold Packs:
- Instant cold & warm packs (can be found on labor unit)
- Reduces pain & labor length
- During 1st Phase of Labor: 30 minutes: Warm pack on low back & low abdomen 10 minutes: Cold pack on low back & low abdomen
- During 2nd Phase of Labor: same procedure with interval times (15 & 5 minutes)
References


