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Dance: The Movement Supporting Safe, Sovereign and Satisfying Birth Experiences

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DANCE: THE MOVEMENT SUPPORTING SAFE, SOVEREIGN AND SATISFYING LABOR AND BIRTH EXPERIENCES

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Abstract

Background/Purpose: Labor dance utilizes upright positioning, hands and knees position, use of the rebozo and other alternative labor and birth positions as a traditional means of taking advantage of gravity and increasing the pelvic diameter in labor and birth. Despite recommendations by the American College of Nurse-Midwives (ACNM) and the American College of Obstetricians and Gynecologists (ACOG) supporting such positions, promotion and use of labor dance remain in the margins of labor and birth experiences for most women. This literature review finds that labor dance increases safety, sovereignty and satisfaction in the labor and birth experience for women. Further, this simple tool can be used to improve the birth experiences for all women.

Theoretical Framework: As a model of care, *Central Concepts in the Midwife-Woman Relationship* serves as a platform to understanding how labor dance can impact a woman's labor and birth experience. Lundgren and Berg (2007) propose six pairs of concepts which define mind-body and environmental connections that influence a woman's clinical and psycho-social outcomes in the labor and birth experience. Serving as a guide to midwifery care, promotion of these central concepts choreographs the midwife-woman relationship into safety, sovereignty and satisfaction in labor and birth.

Results/Findings: Several major themes supporting labor dance were presented in the literature. The most common are how labor dance supports pain management, safety in labor and satisfaction of labor. Next, the literature exposed the impacts that labor dance can have on the dynamic relationships between the woman and herself, her partner, her midwife and with the

environment around her. Finally, the literature proposes that labor dance can play a role in addressing socioeconomic disparities in maternity care.

Implications for Research and Practice: To begin, midwives who provide options for labor dance and who labor dance with patients can shape the context of a woman's birthing experience, providing safety, sovereignty and satisfaction. And yet, it appears that midwives aren't offering labor dance to the majority of women as an option to manage their labor. By not discussing labor dance in pregnancy, midwives are limiting a patient's ability to engage in true informed choice. Next, a sense of control and ability to cope with labor is gained before a woman even sets foot into the birth space. Existing programs which provide opportunities for women to become acquainted with labor dance should be adopted by midwives and integrated into group-based prenatal care. Further research is needed to look at the impact of introducing labor dance to decrease rates of medical interventions and at the barriers and bridges to supporting labor dance in a variety of birth settings.

Keywords: dance in birth/labor, upright position in birth/labor, movement in birth/labor, satisfaction in birth/labor, sovereignty in birth/labor, position change in birth/labor, control in birth/labor, position in birth/labor, self-determination, and obstetric complications

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Chapter I: Introduction

If the media is any reflection of reality, most women labor and birth in a bed with legs up in stirrups while yelling at their partners. Across the globe, these birth scenes play out along with increased rates of medical interventions, increased rates of cesarean births, increased rates of maternal mortality and morbidity and lower rates of satisfaction for women. (Declercq et al., 2014). However, social media has begun to reflect a different reality. In 2015, a video of Yuki Nishitzawa went viral as she danced the "Tootsee Roll" during labor (Ciras, 2015). And since 2017, Dr. Fernando Guedes da Cunha of Brazil has been posting videos of himself dancing with labor patients (Baulkman, 2018); many of which also go viral. That these videos go viral indicates that dancing through labor is still an anomaly in the birth space. It also indicates that women may want more from their birth experiences than what the medical model has offered them. Luce et al. (2016) write that "medicalisation has created disconnect between the pregnant woman and her body." Labor dance has the ability to reconnect women with their bodies while also increasing both clinical and psycho-social positive outcomes for women.

Statement of Purpose

Dance has been used as a tool to support women in the birth space for centuries. Stories of sisters, cousins, aunties and friends surrounding a birthing woman as she swirled her hips through labor are told through oral histories, literature and art (Al Hindi, 2009). Among the oldest forms of dance, belly dance is believed to have originated as a ritual of fertility and childbirth (Hobin, 2003). Kitzinger (2011) writes, "A Bedouin Arab girl learns a pelvic dance during puberty… and will bellydance, when she is in labour. The belly dance represents the power of women to produce life." Yet, there is little written evidence of the role dance has

played in childbirth throughout time. It is suggested that the rituals of dance and birth were experienced away from the eyes of men, the writers of history, “shrouded by the mystery of the dance as an ancient sacred rite,” (Al Hindi, 2009).

The purpose of this paper is to put the mystery of these rituals to the test. If labor dance was in fact used in childbirth in the earliest days of mankind, does it still have a place of value for child-bearing women today? If so, what value does it hold? In this paper, a review and analysis of current academic literature is undertaken to answer the question, does labor dance increase safety, sovereignty and satisfaction in the labor and birth experience for women? If so, how can this simple tool be used to cultivate a healthier birth landscape for the modern woman?

Labor Dance Defined

There are specific programs that teach pregnant women and birth professionals about labor dance. Among the most established are Dancing thru Pregnancy® founded in 1979 and Dancing for Birth™ founded in 2001. Aside from these well-established programs, dance in labor remains on the fringe of intrapartum support and research (CITE). Other applicable topics included upright position, hands and knees position, use of a rebozo, alternative birth positions and delivery positions. Each of these concepts takes advantage of gravity and increases the pelvic diameter (Gizzo, et al., 2014). While labor dance may be defined by specific movements in a Dancing for Birth™ or Dancing thru Pregnancy® class, labor dance itself incorporates all of the aforementioned concepts and also provides women with space to express emotion, energy and delight in labor (Mackrell, 2020).

Evidence Demonstrating Need

The need to explore how dance can impact labor and birth is born out of the current maternal health crisis in the United States. Pregnancy related deaths have risen steadily from 7.2 deaths per 100,000 live births in 1987 to 17.3 deaths per 100,000 live births in 2017 (Centers for Disease Control and Prevention, 2020). In response, Gingrey (2020) writes, "Think about all the medical advances that have occurred in recent times, and yet the risks associated with pregnancy have not declined. These figures say to me we are failing women during what should be a most wondrous time of their lives. No developed nation has a more shameful record." The over-medicalization of birth and racial and socioeconomic disparities are both listed among the top seven causes explaining this crisis. (Every Mother Counts, n.d). Labor dance provides an opportunity to counter each of these challenges.

Position statements supporting movement in labor can be found by the American College of Nurse-Midwives and the American College of Obstetricians and Gynecologists (American College of Nurse-Midwives [ACNM], 2014; American College of Obstetricians and Gynecologists [ACOG], 2019). Recommendations in *UpToDate* and in a Cochrane Review are also supportive (Caughey, 2019; Funai & Norwitz, 2021; Gupta et al., 2017).

The American College of Nurse-Midwives (ACNM) position statement, *Appropriate Use of Technology in Childbirth* suggests that movement in labor has benefits for laboring women and should be encouraged (American College of Nurse-Midwives [ACNM], 2014). Further, the statement reinforces the role that midwives play in moving with women through labor. As a practice, midwives should limit unnecessary interventions, utilize evidence-based management and encourage full partnership with women in their care. To obtain these goals, ACNM (2014) advocates for, "availability and provision of non-technological interventions for comfort in labor for all women." Labor dance is one of the most non-technological, low resource interventions

available, for it only requires the woman and the support of those around her. The position also states that midwives "should be aware of the current evidence or lack thereof" of technologies and interventions. This includes the need to be aware of how to support laboring women through labor dance as, outside of contradictory evidence, "a woman's choice should prevail," (ACNM, 2014). If a woman's choice is to dance, her midwife should be ready to dance with her.

The American College of Obstetricians and Gynecologists (ACOG) also endorses movement in labor. In the committee opinion, *Approaches to Limit Intervention During Labor and Birth*, ACOG recognizes that "women spontaneously assume many different positions during the course of labor," and that the supine position has many deleterious effects (American College of Obstetricians and Gynecologists [ACOG], 2019). Therefore, as a measure to limit interventions, ACOG supports frequent changes of position through labor. Position changes, the opinion states, can increase maternal comfort and encourage optimal fetal positioning.

Recommendations from *UpToDat*e are also supportive of labor dance. According to Funai & Norwitz (2021) in *Management of Normal Labor and Delivery*, maternal involvement in decision making and upright maternal positioning for comfort lead to greater satisfaction, shorter first stage of labor, reduction of assisted vaginal deliveries and reduction of cesarean births. The *UpToDate* recommendation cites a *Cochrane Review* confirming these conclusions. In this review, however, Gupta et al. (2017) also found that women who labored in upright positions had an increased risk of losing more than 500mL of blood. They concluded more trials are needed to address this risk.

A second *UpToDate* recommendation, *Nonpharmacologic Approaches to Management of LaborPain* (Caughey, 2019), is based on the evidence that nonpharmacologic methods of pain management, such as movement, can help a woman maintain a sense of control through her

labor. This sense of control seamlessly feeds into feelings of sovereignty, satisfaction and self-efficacy. Caughey (2019) lists movement as an optimal approach to pain management. Allowing a mother to make intuitive changes in her position can make her more comfortable, encourage favorable pelvic dimensions and instill a sense of freedom and control. The same Cochrane Review is cited again here, confirming the benefits and challenge of upright positioning. Finally, this *UpToDate* recommendation states that nonpharmacologic pain management techniques are most effective when a woman has had the opportunity to "rehearse and master" (Caughey, 2019) them prior to labor. Caregivers, i.e. midwives, must also have mastery of the techniques.

Despite these recommendations, 68% of women in the U.S. labor and birth in a supine position and 23% do so in a semi-recumbent position (Declercq et al., 2014). Additionally, standard interventions such as continuous fetal monitoring, IV hydration and epidurals limit freedom of movement for laboring women (Zhang et al., 2017). Increasingly poor clinical and psycho-social outcomes are building momentum for a shift in how women birth in the U.S. There has never been a greater need to see what the current literature says about labor dance. It is potentially an underutilized tool and has the power to return safety, sovereignty and satisfaction to birth.

Significance to Nurse-Midwifery

Results of the last thee *Listening to Mothers* surveys, conclude, "there was little indication that the maternity care system protects, promotes, and supports the intrinsic physiologic capacities of this largely healthy population of women," (Declercq et al., 2013). While less than 10% of births in the U.S. are attended by midwives, the work of midwives still has a significant impact on the maternity system and the care women receive within it (Martin et

al., 2018). Midwives are experts at using low-resource, high impact tools to keep women safe and satisfied while honoring their sovereignty during labor and birth. Labor dance is an essential tool midwives can use to shift the operation and outcomes of maternity care in the U.S.

Further, *utilizing an understanding of social determinants of health to provide high-quality care to all persons including those from underserved communities* is a hallmark of midwifery care (ACNM, 2020). Racism is embedded into the U.S. maternity care system. To adequately care for impacted populations, midwives must examine every practice to address its perpetuation of racism in the birth space. Position in labor is one such practice; it can communicate dominance by a provider or it can communicate partnership with women. Dance is a universal language in which women from all racial, ethnic and cultural backgrounds can be invited to safely express themselves. Through dance, women can use their music, their movement, and their rituals to safely labor and birth their children. In this way women gain control over their birth space leading to greater satisfaction and sense of control (Gönenc & Dikmen, 2020). Using dance in the labor and birthing space can give voice to women who have traditionally been silenced and support women from all backgrounds (Vedam et al., 2019).

Theoretical Framework

Midwifery theory provides critical frameworks and hallmarks for midwifery practice. And, while the art of midwifery may be as old as the earth, midwifery theory is still young. Yet, the pioneers of midwifery theory have already had great impacts on the way nurse-midwives train and practice. The theory chosen to frame this literature review and anchor the research question is Lundgren and Berg's (2007) Central Concepts in the Midwife-Woman Relationship.

Lundgren and Berg's work echoes the work of Wiedenbach's practice based prescriptive theory and Lehrman's Nurse-Midwifery Practice Model, a middle range theory (Cragin, 2004).

Ernestine Wiedenbach was the first nurse-midwife to use theory as a tool to shift the emphasis of nursing from a medical model to a patient centered model (Cragin, 2004). According to Wiedenbach (1963), use of appropriate philosophy, purpose, practice and the art of nursing were critical to understanding the true needs of a patient and thus to achieving authentic patient centered care. Wiedenbach's work was later developed to serve as the American College of Nurse-Midwives' official philosophy (Cragin, 2004).

Building on Wiedenbach's work is Lehrman's Nurse-Midwifery Practice Model. Lehrman (1988) introduced five constructs which impact a woman's psycho-social outcomes in relationship to nurse-midwifery care. Those five constructs are previous health outcomes, practice settings, components of nurse-midwifery care, social support, and psychosocial-physiological adaptation. Most pertinent to the topic of this literature review are practice settings, further described as personal environment and psychosocial-physiological adaptation, further described as transcendence. Lehrman (1998) writes that, "Nurse-midwifery practice considers both the internal and external environments influencing a recipient's health."

Lundgren and Berg's (2007) Central Concepts in the Midwife-Woman Relationship is echoed by midwifery theorists Wiedenbach and Lehrman, whose theories promote the idea that the mind-body connection is central to patient centered care as is the relationship between the woman and the world around her. Identifying similarities between their findings and Lehrman's theory, Lundgren and Berg (2007) explain that their partnered concepts should be utilized as a guide for midwifery care. They write, "If we want to perform health care which endeavours for maximal health for mother and child, these interpersonal dimensions need to be included,"

Lundgren and Berg (2007). The theory of Central Concepts in the Midwife-Woman Relationship passes Duffey and Muhlenkamp's (1974) criteria for theory as 1) The identified concepts about the midwife–woman relationship as essential to care is a testable hypothesis. 2) The concepts can be used to guide practice. 3) The concepts are broad and can be applied to both normal and high risk birth. 4) The assumption that these concepts are essential for care has been clearly identified. 5) The relationship between concepts has been explicitly stated. And 6) the simplicity of paired concepts to frame the midwife-woman relationship is parsimonious.

Understanding the mind-body and environmental connections these concepts support is integral to positive psychosocial-physiological outcomes for women (Cragin, 2004). "Humans have access to the world through their own bodies habiting history, tradition, space, time and relations with others," write Lundgren and Berg (2007). With this lens Lundgren and Berg (2007) analyzed eight Swedish qualitative studies to delineate and propose the defining concepts of the midwife–woman relationship as a model of care. Their results are six pairs of concepts, each including the woman's perspective and response from the midwife's perspective. The concepts are listed below:

Surrender & Availability

Surrender. A birthing woman surrenders to herself, her body, childbirth and her healthcare team.

Availability. The midwife's is flexible in supporting each unique woman as she desires, only intervening when requested or when normal birth is disturbed

Trust & Mediation of Trust

Trust. In order to surrender to herself, her body, childbirth and her healthcare team, a woman must first trust those entities. And, it is necessary for a midwife to reinforce that trust.

Mediation of Trust. The midwife promotes trust by trusting in and supporting a woman's capacity to engage in the normal birth process.

Participation & Mutuality

Participation. When women are informed, seen, listened to and supported on their own terms, they are active participants in their childbirth experience.

Mutuality. Mutuality occurs in dialogues, shared responsibility and willingness to travel through the childbirth experience.

Loneliness & Confirmation

Loneliness. Loneliness is experienced in the face of unknown outcomes of pregnancy and childbirth as well as feeling solely responsible for those outcomes.

Confirmation. The midwife confirms that she is equally responsible for the pregnancy and childbirth outcomes. Her confirmation is demonstrated in emotional and physical closeness.

Differences & Support uniqueness

Differences. Any deviation from the 'standard' marks a woman as different, hampering her relationships with others.

Support uniqueness. In contrast to standardization, midwives must support women's unique situations and desires as they strive to promote normal birth.

Creation of meaning & Support meaningfulness

Creation of meaning. As a woman reconciles her experience and circumstances, she gives meaning to them.

Support meaningfulness. The midwives support the course of pregnancy and childbirth and the women's experiences therein as having value and meaning in and of themselves.

Summary

While labor dance is still an anomaly in many U.S. birth spaces, movement is endorsed by ACNM, ACOG, *UpToDate* and in a Cochrane review. Current recommendations highlight the sense of control women feel when movement is used as a tool in labor. They also address the current maternal health care crisis by acknowledging the clinical benefits of alternative positions and movement in labor such as shorter labor and decreased need for cesarean. Utilizing the perspective of Lundgren and Berg's (2007) Central Concepts in the Midwife-Woman Relationship, midwives and women can use labor dance as a tool to actively engage in labor and birth, creating a safe, sovereign and satisfying and experience for women of all racial, ethnic and cultural backgrounds. The Encyclopedia Britannica defines dance as, "the movement of the body…for the purpose of expressing an idea or emotion, releasing energy, or simply taking delight in the movement itself," (Mackrell, 2020). If recommendations for labor dance are truly activated in birth spaces, imagine how many emotions could safely be expressed, how much energy could be released and how much delight might be found in the labor experience.

Chapter II: Methods

Methods

The section on methods infuses this literature review with the science of midwifery by explaining the critical analysis of academic literature used to explore the value of dance and movement in the birth and labor experience. After looking at over 90 studies found via database searches, resource list mining and citation tracking, 28 have been selected based on inclusion and exclusion criteria to understand this value.

Search Strategies

Studies for this paper were found via several different methods. Research began using the following databases: CINAHL, Google Scholar, Science Direct, Pubmed and the Journal of Women's Health and Midwifery. Key terms used were: dance in birth/labor, upright position in birth/labor, movement in birth/labor, satisfaction in birth/labor, sovereignty in birth/labor, position change in birth/labor, control in birth/labor, position in birth/labor, self-determination, and obstetric complications. Next, the reference lists of included studies were mined and citations of those studies were tracked. Finally, a notification system was set up with Academia.edu in which I was alerted to studies related to my searches. While these search strategies produced over 90 studies, 28 have been selected based on inclusion and exclusion criteria.

Criteria for Inclusion and Exclusion of Research Studies

For this literature review, included original research studies are those looking at how movement and position in birth impacts the labor experience. This includes studies examining

both patient and provider perspectives, barriers to movement and history of movement in labor. Unless seminal in nature or deemed by the writer to be critical to the review, included studies were dated from 2014 to present. Since birth is a universal experience, experiences and research originating from many countries around the world were also included. Research based in all birth settings were considered. Excluded studies were those in languages other than English. Studies looking at women with high risk pregnancies were excluded.

Summary of Selected Studies

Based on inclusion and exclusion criteria, a total of 28 studies have been included in this literature review. 11 of the 28 selected studies were experimental including randomized control trials, a mixed plot design, a prospective and a repeated measures design. One study was quasi experimental. The remaining studies included 3 cross sectional studies, 4 interview, survey or questionnaire-based studies, 8 qualitative descriptive, phenomenological or qualitative-quantitative studies and 1 retrospective research study. 65% of the studies used were dated 2016 and later with 35% dated between 2012 and 2015. The settings for studies were located in Australia, Canada, China, Denmark, England, Gambia, Iran, Iraq, Italy, Malawi, Nigeria, Poland, Taiwan, South Africa, Sweden, Turkey, and the United States.

Evaluation Criteria

The Johns Hopkins Research Evidence Appraisal Tool was used to evaluate selected studies based on strength and quality (Dearholt & Dang, 2018). Strength is categorized into Levels I-III. Level I includes experimental studies, randomized controlled trials (RCT) and systematic reviews of RCTs, with or without meta-analysis. Nine level I studies are included in this review.

Level II includes quasi-experimental studies, systematic reviews of a combination of RCTs and quasi-experimental, or quasi-experimental studies only, with or without meta-analysis. There are three level II studies included in this review. Level III includes non-experimental studies, systematic review of a combination of RCTs, quasi-experimental and non-experimental studies, or non-experimental studies only, with or without meta-analysis and qualitative studies or systematic reviews with or without a metasynthesis. Level III studies make up the bulk of this literature review with 15 Level III studies included.

According to the Johns Hopkins Research Evidence Appraisal Tool (Dearholt & Dang, 2018), the studies are next ranked for quality. They are ranked as high quality, good quality and low quality or having major flaws. High quality is described as, "Consistent, generalizable results; sufficient sample size for the study design; adequate control; definitive conclusions; consistent recommendations based on comprehensive literature review that includes thorough reference to scientific evidence." Good quality is described as, "Reasonably consistent results; sufficient sample size for the study design; some control, fairly definitive conclusions; reasonably consistent recommendations based on fairly comprehensive literature review that includes some reference to scientific evidence." And low quality or having major flaws is described as, "Little evidence with inconsistent results; insufficient sample size for the study design; conclusions cannot be drawn." The vast majority of included studies are of good quality, while seven studies are ranked as high quality and three studies were ranked as having low quality or major flaws. Low quality studies are included because of the insight they provide to the question of this review.

Summary

Based on inclusion and exclusion criteria, 28 studies were selected from database searches, resource list mining and citation tracking to explore the value of dance and movement in the birth and labor experience. In addition to providing content to support the topic, these studies were analyzed to determine their evidence levels and quality according to the Johns Hopkins Research Evidence Appraisal Tool (Dearholt & Dang, 2018). Final studies chosen were deemed as having substantial merit for scholarship as well as significant insight for understanding the value of dance and movement in the birth and labor experience.

Chapter III: Literature Review and Analysis

Synthesis of Matrix

To organize and analyze current literature related to labor dance, Garrard's (2011) matrix method was used (See Appendix 1). The matrix categories utilized are source, purpose, sample setting, design (methods and instruments), results, conclusion, strengths, limitations, author recommendations and implications. Level of evidence and quality of each study was assessed according to the Johns Hopkins Research Evidence Appraisal Tool and is also included in the matrix (Dearholt & Dang, 2018). Twenty eight studies are included in the final matrix and include nine randomized control studies, one mixed plot design, one prospective repeated measure study, one quasi-experimental study, three cross sectional studies, four interview, survey or questionnaire-based studies, eight qualitative descriptive, phenomenological or qualitative-quantitative studies and one retrospective research study. The matrix is organized first by highest level of evidence, then quality and finally alphabetically within each category. Results, recommendations and implications of each study within the matrix and are synthesized below.

Synthesis of Major Findings

Several major themes supporting labor dance were presented in the literature. The most common are how labor dance affects pain management, safety in labor and satisfaction of labor. Next, the literature exposed the impacts that labor dance can have on the dynamic relationships between the woman and herself, her partner, her midwife and with the environment around her. Finally, the literature proposes that labor dance can play a role in addressing socioeconomic disparities in maternity care.

Pain Management

Despite the widespread use of epidurals, is it possible that many women prefer non-pharmacological pain-relief? In Poland, Pilewska-Kozak et al. (2017) found that 68.7% of women surveyed were interested in non-pharmacological methods to manage pain. And 86.6% of their respondents believed that non-pharmacological methods also reduced labor-related anxiety.

Pain, as a physical sensation, can be a powerful tool to help a laboring mother know what she needs to do to support the birth of her child. Larson (2015) writes that sensation allows a laboring woman to adjust the position of her body in order to facilitate movement of the baby through the birth canal. However, while sensations can be utilized to a woman's benefit in labor, pain alone can be detrimental for both the pregnant woman and the baby. Further, a woman's psychological and emotional state can have an effect on her perception of pain. (Akin & Saydam, 2020). Echoing Lundgren and Berg's (2007) Central Concepts in the Midwife-Woman Relationship theory, Whitburn et al. (2017) explain that, "A determining factor of a woman's experience of pain during labor is the meaning she ascribes to it." Interventions, such as labor dance, can create positive and productive associations with the sensation of pain, increasing a woman's capacity to cope with the sensations (Whitburn et al., 2017).

Labor dance can occur in any environment with only the sound of a fetal monitor as accompaniment or in step with a well curated playlist. Gönenc and Dikmen (2020) divided 93 laboring women into three groups: dance and music, music alone, and usual care. Four times throughout labor the women's pain was assessed using the visual analog scale. During active labor, women in the dance and labor group had significantly reduced levels of pain compared to

the other groups. Gönenc & Dikmen (2020) suggest that when a woman experiences less pain through dance and music, she is more likely to feel in control of her labor and have the sense of playing an active role in the birth of her child.

Similar results were found by Abdolahian et al. (2014). They divided 60 women into two groups. The first group was instructed to tilt their pelvis back and forth and rock or circle their hips, using their partner's shoulders for support. Throughout these movements, they were also asked to remain upright for at least 30 minutes at a time before recording a pain score. Without guidance and with normal care, the women in the control group were able to choose their own positions; resulting in little to no ambulation. The women in the labor dance group had significantly less pain than the women in the control group.

A rebozo is a long, woven scarf used by many doulas and midwives to support women in labor. Use of the rebozo originated in Mexico and encourages dance like movements in a laboring woman. Iversen et al. (2017) found that women who used a rebozo in labor expressed pleasure with the induced movement of their hips. They also described relaxation in their muscles and a reduced need for pharmacological pain relief when using a rebozo.

In an interview with women who labored at home, one woman explained, *"The pain I felt was like I was in the middle of a thunderstorm with both hands stretched against the sky. Releasing the control and giving way actually meant that I was in charge of what happened," (*Thies-Lagergren et al., 2020). The position described is characteristic of a labor dance movement called *Birth Goddess,* in which a mother stretches her hands to the sky and sways her hips (Larson, 2020). Movements like this may not eliminate all sensations of pain for a woman, but they are demonstrative of women working with labor (Valiani et al., 2013). Labor dance

clearly has the ability to reduce the perception of pain and the need for pharmacological pain relief, thereby bolstering a woman's sense of control in labor.

Safety in Labor

In addition to its establishment as a non-pharmacological method of pain relief, labor dance can also be used to secure a safer birth. In contrast to labor dance, the most common labor and birthing position in hospitals is supine. However, the supine position can lead to several risks for the mother and baby including maternal compression of abdominal blood vessels and the vena cava, less efficient uterine contractions, less perineal muscle relaxation, increased use of pharmacological pain management, increased labor duration, increased risk of operative and cesarean births, abnormal fetal heart tracings, greater risk of episiotomy and severe perineum swelling (Gupta et al., 2017; Thies-Lagergren, et al., 2013; Zhang et al., 2017).

Labor dance, on the other hand, is associated with fewer medical interventions and complications. In an observational study, Gizzo, et al. (2014) divided 225 women into two groups after labor and delivery. The first group, Group-A, included women who spent more than 50% of their labors in a recumbent position. The second group, Group-B, included all the women who spent more than 50% of their labors in alternative positions such as upright, squatting, moving on a ball or on hands and knees. The women in Group-B have significantly better outcomes in several categories. Group-B women delivered vaginally 87.1% of the time. Group-A women delivered vaginally 47.8% of the time. Of those who had vaginal deliveries, 7.1% of the women in Group-B had an operative vaginal birth and 26.1% of the women in Group-A had an operative vaginal birth. Only 5.8% of women in Group-B required a cesarean birth compared to 26.1% of women in Group-A. Group-B women experienced shoulder dystocia 0.7% of the time

and Group-A women experienced shoulder dystocia 13.05% of the time. Occiput posterior positioned babies persisted at a rate of 28% in Group-B women and at a rate of 39.6% in Group-A women. Finally, of all Group-B cases, 5.1% had abnormal fetal heart rates whereas 13.05% of all Group-A cases had abnormal fetal heart rates.

When assigning over 446 women to upright and forward leaning positions in labor, Zhang et al. (2017) found that these women had significantly lower rates of episiotomy, lower rates of cesarean births, and higher rates of intact perineum than the supine assigned group. Additionally, there were no increased rates of neonatal asphyxia, shoulder dystocia or postpartum bleeding in the upright group. Thies-Lagergren et al. (2013) also found that women who gave birth in upright positions have fewer birth complications.

Labor dance takes advantage of gravity, facilitating sufficient uterine perfusion and increasing the effectiveness of contractions. It also supports fetal-pelvic alignment and increases the maternal pelvic diameter (Gizzo, et al., 2014). While these benefits can sometimes be difficult to assess due to routine interventions in many modern obstetric settings, the studies referenced above demonstrate that labor dance positions are safe and have clear clinical benefit to the mother and baby (Hodnett et al, 2013).

Satisfaction

Maintaining a sense of control through labor is the main determinant to experiencing a satisfying childbirth experience. Higher feelings of control lead to less perceived pain, an increase in intense positive emotions and a decrease in negative emotions. Women who experienced a traumatic birth reported a low sense of control (Aynaci, 2020). While women often realize that circumstances may shift in labor in which they may not be able to control

outcomes, they have an expectation to be in control both mentally and emotionally (Campbell & Nolan, 2019).

Carlsson et al. (2015) report that women who have a lower sense of self-efficacy in childbirth experience more fear, which consequently leads to increased tension and pain in childbirth, decreasing satisfaction (Read, 1944). By influencing a woman's perception of pain, self-efficacy and sense of control, labor dance can create a more satisfying birth experience for women (Gizzo, et al., 2014). For example, after dancing to music for only five minutes, study participants in England experienced a boost in mood and decreased fatigue. Other participants only listened to music and didn't have the same results. In only five minutes, dancing to music was able to change the perception of the current moment for study participants to create a positive experience (Campion & Levita, 2014). This reinforces the findings that when compared to women in a supine position, women who labor in upright positions feel powerful, strong, safe, secure, protected and self-confident (Thies-Lagergren et al., 2013).

Expressing how yoga impacts self-control and self-efficacy in childbirth, one mother explained, *"I feel quite empowered in a way that birth isn't something that is going to happen to me: I can kind of be active in it."* (Campbell & Nolan, 2019). Labor dance can have the same impact. Like yoga, labor dance can be learned prior to birth preparing a mother with tools to use during her labor. Women who practiced yoga prenatally explained that they had a cadre of movements they could use during labor and were able to select which ones felt right for them as needed. Being able to self-select their own coping strategies increased self-efficacy and sense of control (Campbell & Nolan 2019).

Relationship Between Woman and Self

Women want to be active participants in their labor experience (Thies-Lagergren et al., 2013). Being able to participate in decisions regarding her own body makes a woman feel respected and honored (Aynaci, 2020). However, despite best intentions in many areas of the world, midwives, hospital administration and policy-makers diminish women's choices in labor (Musie et al., 2019). Some examples of this are non-evidence based requirements for fetal heart rate monitoring, restricted dietary intake and non-medical inductions. These interventions counter the spontaneity and instinct of labor dance (Zhang et al., 2017).

Labor dance allows for women to make choices in how they move in labor and respond to the sensations of labor. It allows them to be physically, emotionally and mentally in control of the experience. Labor dance allows a woman to "enter a state of forgetfulness and intensification … getting to a point where you're not thinking about what you're doing but you're still very much experiencing what you're doing," (Moe, 2018).

Relationship Between Woman and Partner

Labor can be lonely for women and labor dance can be used to connect them to their partners in the birth space (Lundgren & Berg, 2007). Both pre-learned and spontaneous movements can facilitate unification and cooperation for the laboring woman and her partner while providing both physical and emotional support for the woman (Iversen et al., 2017). Akin and Saydam, (2020) found that the positive impact of labor dance on perceived labor pain, birth satisfaction and neonatal outcomes was enhanced by the presence of individuals desired by the laboring woman. Ways for the woman to labor dance with a partner include use of a rebozo or draping her arms over a partner's shoulder as she sways from side to side with or without partner

led sacral massage (Akin & Saydam, 2020; Iversen et al., 2017). Dancing together instills a sense of teamwork and psychological support (Karlström et al., 2015).

Relationship Between Woman and Midwife

The midwife plays a critical role in encouraging or discouraging labor dance. Colley et al. (2018) write that "Empowering and encouraging women to change positions during the first and second stage of labor is an integral part of quality intrapartum care." Midwives are required to inform about, encourage and provide the tools for a safe and satisfying birth, making it important for midwives to facilitate labor dance in the birth space. Women who had high perceptions of midwifery engagement felt safe, in control and able to manage labor. Women had the lowest perceptions of midwifery support when midwives didn't offer suggestions of or help them into different positions in labor and birth (Colley et al., 2018).

Looking at birth positions in Nigeria, Diorgu et al. (2016) reported that most women birthed in a supine position and that the birth position was determined by the midwife. While many midwives stated they were aware of other birth positions and of the disadvantages of the supine position, 98% of them said they used the supine position most often. Declercq et al. (2013) found that in the U.S. 68% of women give birth in the supine position. It appears the supine position is overused the world over. In this position, women see themselves as passive participants in their own labor and birth (Diorgu et al.2016).

Midwives in South Africa explained a preference for the supine position as it provides a good view of the perineum, facilitates fetal monitoring and eases physical strain for the midwife. One midwife with 14 years of midwifery experience stated, "Alternative birth positions can be done only if the midwife is comfortable with it" (Musie et al., 2019). Knowing the benefits of

labor dance for mother and her baby in labor, it is unsettling to see that many midwives aren't suggesting it more often for their own convenience. When looking at women's knowledge of possible labor positions in Malawi, Zileni et al. (2017) found that 58.7% of women has been informed about walking from their midwives, 53.9% has been informed about using a lateral position and 92.5% had been informed about being in a supine position for birth. Nieuwenhuijze et al. (2012) found that only 22% of women surveyed in the Netherlands felt they were adequately informed about birth positions by their midwives. In Sweden, Thies-Lagergren et al. (2013) found that only 14% of women received any information about birth positions at all. And more than 50% of women in their study reported that their midwife didn't suggest any position changes during labor. Nieuwenhuijze et al. (2014) did find, however, that midwives began to suggest a change in birthing position when the second stage of labor lasted longer than normal. Overall it appears that midwives prefer and educate about the supine position most often.

And yet, women have indicated that a midwives' suggestion for birthing positions is the greatest influence in their choice of birthing position. Despite a trend of providing limited information to women about birth positions, midwives play a major role in educating women about birth positions both prenatally and in labor. Providing limited information to women may limit women's perceptions of what is possible. On the other hand, when midwives suggest labor dance to women, women are likely to use it (Nieuwenhuijze et al, 2012). Nieuwenhuijze et al. (2012) explain that both primiparous and multiparous women had a strong desire for direction in birth positions during labor. Just as much as women appreciated the concrete support of a rebozo from a midwife, they appreciated the midwife's proactive initiative in suggesting the rebozo. Active midwifery involvement increased women's feelings of empowerment, emotional comfort and calm (Iversen et al., 2017). Midwives who were consistently present and danced with their

laboring clients increased the clients' sense of satisfaction as well as enhanced maternal psychological and physiological healing (Akin & Saydam, 2020).

Because women are often not aware of the possibility of labor dance, midwives have the responsibility to promote it for them (Musie et al., 2019). Actively dancing with women in labor may be the most effective way to do that (Akin & Saydam, 2020). Dancing with women helps them find positions most comfortable to them, build mutual trust and competence and bolster their self-esteem (Karlström et al. 2015; Musie et al., 2019). By proactively introducing labor dance to women, midwives are giving women true informed choice and opportunities for shared decision making in labor.

Naturally, in order for midwives to labor dance with and suggest labor dance to women, they must themselves be familiar with the concept. It must be noted how labor positions are taught to midwives and then encouraged in practice. In South Africa, many midwives expressed that they felt they didn't have adequate skills or training to facilitate upright labor positions and labor dance. While positioning was taught in their training, they felt they never acquired the skills and competence to utilize it (Musie et al., 2019). One midwife with three years of midwifery experience stated, "'I place the woman on lithotomy position because it is what I found being done in the unit. I think it is a culture of this unit and I know I was taught on other birth positions during studies, but I have never practiced it," (Musie et al., 2019). As the primary informant on birth positions, it is critical that midwives gain the competence to support women in labor dance. Zileni et al. (2017) highlight that in addition to learning how to encourage and support labor dance, both midwives and doctors must also be taught how to deliver in upright and other non-supine positions.

Relationship Between Woman and The Environment

Finally, the physical environment can greatly impact a woman's desire and ability to labor dance. Women who labor and birth at home express that they feel in control, relaxed and able to cope with labor pain. In addition to increased autonomy, Thies-Lagergren et al. (2020) note that women at home felt able to work with their labor sensations on their own terms. Despite scoring high on the Likert scale, 5 or higher, for pain intensity in labor, they also scored 5 or higher in a similar scale indicating a positive experience (Thies-Lagergren et al., 2020). One woman who birthed at home stated, *"I was completely in charge and the midwife was there if needed"* (Thies-Lagergren et al., 2020). A home birth environment also gives midwives more autonomy. And in this setting they are more likely to encourage, support and demonstrate different positions (Nieuwenhuijze et al. (2012).

In contrast women who felt physically and mentally prepared for birth, felt stripped of that preparation when being admitted to a hospital. Women who prepared for birth through yoga expressed losing their sense of control once they arrived at a hospital or once medical interventions were introduced (Campbell & Nolan, 2019).

Musie et al. (2019) explains that birthing facilities are often planned without the input of midwives and that it is often difficult to incorporate objects and tools utilizing upright positions. One of the most common and permanent fixtures in modern hospital birth settings may also be one of the biggest barriers to labor dance: the bed. Likely attributed to the media's portrayal of the bed as a primary part of the birth experience, surveyed midwives believe that 50% of laboring women prefer to do so on the bed. Midwives expressed difficulty in convincing women to get off the bed in order to try different birth positions. One midwife said that there is resistance from women to get off of the bed about 40% of the time. She describes the ability to

get women off the bed as a skill one must learn (Townsend et al. 2016). At the same time, however, midwives also felt the bed was the best and safest place to assess a woman or have a consultation with an obstetrician if needed. And, “they perceived that doctors would prefer women in this position,” (Townsend et al. 2016).

While some midwives may be afraid of being pegged as non-compliant for moving women off the bed, others use the bed as a tool to facilitate upright birth. Townsend et al. (2016) conclude, “Reflecting on the meaning of an object, such as the bed, is important if clinicians are to fully understand how the birth environment influences their practice and thus women's experiences of labor and birth.”

Tubing and cords are additional components in the physical environment that can act as barriers to instinctive or intentional labor dance. It is difficult for women to be spontaneous in movement and change positions for comfort in the presence of Pitocin induction, fetal monitoring, uterine contraction tracing and epidural analgesia (Gizzo et al., 2014). In this environment it is difficult both for the women to labor dance and for the midwife to support labor dance. Desseauve et al. (2017) write that women’s position in labor are largely influenced by monitoring and medical interventions in labor.

Disparities

Socioeconomic status also has an impact on a woman’s positioning in labor and birth and on her maternal health outcomes. Nieuwenhuijze et al. (2012) found that women with low educational levels were less likely to use pre-determined birth positions in labor. It is suggested that these women may not have felt comfortable declaring and insisting on their desired birth positions. Or, midwives may have taken less initiative in exploring birth positions with these

women. Ayanci (2020) found that women with higher educational levels had high Support and Control in Birth (SCIB) scores and were therefore able to maintain a sense of control in labor. They also had higher rates of vaginal deliveries. Women who had lower SCIB rates had lower rates of education and had increased levels of medical interventions such as foley catheter, painful vaginal examinations and cesarean births.

Non-English speaking women birthing in English speaking countries face increased rates of cesarean births and potentially high risk deliveries. And they incur obstetric trauma during a vaginal birth at two times the rate of English speaking women (Sentell et al., 2016). Non-English speaking women are likely experiencing these adverse outcomes in the absence of choice in position. The supine position was noted as an advantage for midwives when working with women who spoke languages other than English. When lying in bed, midwives noted they could easily get women's attention and pantomime with them to communicate. With other positions, such as squatting or partner dancing, a woman may be looking down or away, making communication more difficult (Musie et al., 2019).

Black and American Indian/Alaska Native women die in pregnancy related deaths at 3.3 and 2.5 the rates of white women in the U.S. (Petersen et al., 2019). Black and brown women are more likely to experience severe postpartum hemorrhage and peripartum infection (Grobman et al., 2015). And in labor, the pain of Black women is likely to be dismissed and undermanaged (Hoffman et al., 2016).

The movement of dance is able to cut through economic, educational, linguistic, cultural and racial barriers to offer safe, sovereign and satisfying birth experiences for all women. Midwives who deliberately incorporate dance into their labor support practices give all women the chance to experience the benefits of labor dance despite prior education and preparation or

lack thereof. Midwives who dance with laboring women use the universal language of movement, and will become more effective with this communication the more it is practiced. Language need not be a barrier to a safe, sovereign and satisfying birth experience. Finally, all cultures have traditions of dance. From hip-hop to belly dance to salsa, every woman can identify with some form of dance which she can incorporate into her labor dance. Culturally specific dances are shown to be effective in engaging women from all backgrounds for improved health outcomes (Murrock & Gary, 2010). Labor dance provides an effective, low cost, low risk tool which can easily be incorporated into any birth space to achieve a greater balance of health equity for all women (Abdolahian et al. 2014).

Critique of Strengths and Weaknesses

The primary strength of this literature review is the wide range of studies it was able to utilize in order to see the impact of labor dance on safe, sovereign and satisfying birth experiences. Impacts of dance were analyzed in the context of several different locations around the globe. Approximately one-third of the studies are randomized control studies and two-thirds are a variety of qualitative studies. This mix of evidence provides a balance with which to assess the clinical impact of labor dance while also understanding the perceptions of and need for women to experience safety, sovereignty and satisfaction in the birth experience. The majority of studies were good and high quality studies. In order to utilize the most current evidence on labor dance, sixty-five percent of the studies used are dated 2016 and later with thirty-five percent dated between 2012 and 2015.

A weakness in this literature review is the lack of studies exploring specifically how labor dance impacts the safety, sovereignty and satisfaction of women with epidural anesthesia and

other medical interventions. Another challenge is the lack of cohesive terminology in the literature. While studies explored a variety of birth positions and perceptions, only one article used the term labor dance, as has been used in this literature review. The majority of articles had moderate sized samples. While this may be a difficult topic to gain information on due to the current obstetric practices in the majority of birth settings, larger sample sizes could provide more generalizability to the research.

Summary

This literature review builds a case to urgently and effectively incorporate labor dance into the framework of professional labor support. Labor dance is a dynamic tool to help women manage painful sensations in labor. Its impact is both physical and emotional, both equally powerful. By giving women the opportunity to respond to physical sensations and move as their body directs, labor dance provides a physical mechanism for comfort. It also increases feelings of active participation, self-efficacy and self-control. These strong emotions shift the perception of pain allowing women to associate the birth experience as a positive event (Akin & Saydam, 2020).

Contrary to a long list of potential complications associated with the supine position, labor dance has a long list of clinical and psycho-social benefits for laboring women. Clinical benefits include higher rates of vaginal births, optimal fetal position (Gizzo, et al.. 2014), higher rates of intact perineum (Zhang et al., 2017) and shorter duration of labor (Thies-Lagergren, et al., 2013). Psycho-social benefits include increased sense of confidence, sovereignty and satisfaction (Thies-Lagergren et al., 2013).

Labor dance also provides a path for the women to be fully active in their labor experience while also utilizing the support of their partners and their midwives (Thies-Lagergren et al., 2013; Gönenc & Dikmen, 2020). Since women value the presence and expertise of their midwives so highly, midwives have great responsibility in utilizing and supporting labor dance in the birth space (Colley et al., 2018; Nieuwenhuijze et al, 2012). Unfortunately, midwives' current training and usage of labor dance is lacking (Zileni et al., 2017). Additionally, birth setting, room fixtures such as beds and the physical elements of medical interventions such as tubing from intravenous lines and cords from fetal monitoring can act as significant barriers to women's ability to labor dance. (Campbell & Nolan, 2019; Desseauve et al., 2017; Townsend et al., 2016).

Finally the language of dance is universal, effective, low cost and low risk. It has the potential to cut through economic, educational, linguistic, cultural and racial barriers to offer safe, sovereign and satisfying birth experiences for all women (Abdolahian et al., 2014; Murrock & Gary, 2010).

Chapter IV: Discussion, Implications, and Conclusions

This paper asks the question, does labor dance increase safety, sovereignty and satisfaction in the labor and birth experience for women? To answer this question, a critical analysis of twenty eight articles was completed using the Johns Hopkins Research Evidence Appraisal Tool. This thorough assessment of literature highlights several major themes responding to the question, looks at its significance to midwifery and articulates the weakness of current literature. The significance of this literature review to the profession of midwifery, needs for future research and its integrations with Lundgren and Berg's (2007) Central Concepts in the Midwife-Woman Relationship theory concludes the literature review in this final chapter.

Literature Synthesis

"Does labor dance increase safety, sovereignty and satisfaction in the labor and birth experience for women?" is the research question grounding this literature review. Encouraged as an efficient tool to support normal, physiologic labor, movement in labor is recommended by ACNM, ACOG and *UpToDate.* By shifting the perception of pain and by working with painful sensations to facilitate labor, dance works as an effective pain management tool (Thies-Lagergren et al., 2020; Whitburn et al., 2017). Several articles confirmed the safety of labor dance, particularly when juxtaposed with the supine position (Gizzo, et al., 2014; Thies-Lagergren et al., 2013; Zhang et al., 2017). And many labor dance positions led to feelings of strength, security, confidence and satisfaction. This was even true in difficult birthing situations (Campion & Levita, 2014; Thies-Lagergren et al., 2013).

The literature also discussed how labor dance impacts a birthing woman's relationship with herself, her partner and her environment. Labor dance places decision making in the hands

of the laboring woman allowing her to be an active participant in her birth and generating feelings of self-respect and honor (Aynaci, 2020). As a primary influence on women's chosen birth positions, midwives can support women by supporting, demonstrating and offering labor dance to women, leading to high levels of satisfaction for women (Akin & Saydam, 2020). Or midwives can become barriers to labor dance if they lack the skills, confidence or interest to support women (Musie et al., 2019). Therefore, labor dance training for midwives is crucial Zileni et al. (2017). Finally, labor dance can be spontaneous and thus needs an environment to support such spontaneity. Laboring at home presents less barriers to labor dance than a hospital room (Nieuwenhuijze et al. (2012). The iconic placement of the bed in hospital rooms and the various tubes and cords associated with medical interventions can make labor dance difficult (Gizzo, et al., 2014; Townsend et al. 2016).

Trends and Gaps in the Literature

Guidelines encouraging labor dance promote it as a tool to support normal, physiologic birth (ACNM, 2012; ACOG, 2019; Caughey, 2019; Funai & Norwitz, 2021). The findings of this literature review break down the many elements that give labor dance value not just to the physiologic process of labor and birth, but to the entire experience. "It is difficult to separate the birth experience from the care given," writes Karlström,Nystedt and Hildingsson (2015). In addition to its use as a safe and effective form of pain management, labor dance improves mood and confidence while decreasing fatigue (Campion & Levita, 2014; Thies-Lagergren et al., 2013; Whitburn et al., 2017; Tzeng, Yang, Kuo, Lin & Chen, 2017). When partners and midwives also engage in labor dance with laboring women, women feel confident and empowered (Akin & Saydam, 2020; Karlström et al., 2015; Musie et al., 2019). Yet, many midwives lack the skills or

confidence to fully support women in positions other than supine. (Musie et al., 2019; Zileni et al., 2017). This begs the question of how midwives are trained to physically support women for normal, physiologic birth.

Medical interventions, which physically make labor dance difficult in a hospital setting, compound midwives' experiences in engaging in labor dance with patients (Desseauve et al., 2017; Gizzo et al., 2014). For example, 71% of women use epidurals in labor (Butwick et al., 2018). There is little information on the use of labor dance for women using epidurals and it can be assumed there are few training opportunities for midwives to intersect the two interventions. Therefore, in order to encourage labor dance, efforts should be made to reduce the amount of medical interventions. If so, labor dance needs to be presented as an equally viable option when midwives discuss pain relief or labor progress for women. No literature found discussed this framework.

Aside from identifying inadequate training in labor dance for midwives, there was little literature looking at how midwives perceive and experience labor dance with patients and the impact it may have on their work as midwives. Further, more needs to be known about how midwives are preparing women for labor. It is wondered if midwives share the option of labor dance with women either by demonstration or through education during both the antepartum and intrapartum periods (Campbell & Nolan 2019; Thies-Lagergren, et al., 2013).

Implication for Midwifery Practice

As described in chapter 3, the midwife plays a prominent role in labor dance. Since labor dance encompasses mind, body and spirit, the midwife who has the skills and confidence to support labor dance is rewarded with a synergy of benefits for her patient and herself. Midwives

who provide options for labor dance and who labor dance with patients earn trust from their patients and build autonomy for their patients. And the diversity of labor dance can be utilized to match the fluidity of the dynamic nature of labor. In this way, midwives can use labor dance to shape the context of a woman's birthing experience, providing safety, sovereignty and satisfaction (Whitburn et al., 2017).

However, in keeping true to the analogies comparing birth to an endurance activity in which training is required, work is required for both midwives and patients before labor begins. Throughout pregnancy and labor midwives have the responsibility to create opportunities for women to explore labor dance. Women reported that with less information about and understanding of childbirth, that they felt unable to make informed choices (Musie et al., 2019). "When limited opportunities were created, mothers become powerless, as evidenced by limited participation, responsibility-sharing, decision-making ability and dependency," writes Musie et al. (2019). With adequate exchange of knowledge and information, however, women felt empowered (Musie et al., 2019). And yet, it appears that midwives aren't offering labor dance to the majority of women as an option to manage their labor. Several studies have asked women if they were told of the pros and cons of different birth positions. In Malawi, 58.7% of 373 women said they were informed (Zileni et al., 2017). In the Netherlands, 22% of 1,154 women said they were informed (Nieuwenhuijze et al., 2012). And in Sweden, 14% of 289 women said they were informed (Thies-Lagergren, et al., 2013). By not discussing labor dance in pregnancy, midwives are limiting a patient's ability to engage in true informed choice.

This literature review revealed numerous benefits of labor dance. In that knowledge, it is suggested that midwives not only discuss labor dance, but also look at their antenatal care models to determine how to offer women the space to physically explore and practice labor

dance. While labor dance doesn't require a routine of rehearsed movements, women have been most successful incorporating labor dance when they are familiar with the movements. With familiarity, women are more likely to persist in using different positions and for longer amounts of time (Campbell & Nolan, 2019). This practice builds self-efficacy for labor. "Belief in one's own ability to control labour pain predicts both the intention to use and the actual use of coping strategies," writes Campbell & Nolan (2019) in discussing yoga techniques for labor. A sense of control and ability to cope with labor, therefore, is gained before a woman even sets foot into the birth space. Like the CenteringPregnancy model, Dancing for Birth™ classes provide a group of women the time to have interactive discussions of antepartum, intrapartum and postpartum topics. Dancing for Birth™ extends the reach of Centering Pregnancy by also offering women time to become familiar with and practice labor dance movements (Centering Healthcare Institute, n.d; Dancing for Birth, n.d.). The need for women to be more acquainted with labor dance suggests that midwifery practices move to provide more group-based prenatal care.

Finally, midwives ought to closely examine their role in the birth space with women. Direct physical demonstration of labor dance serves to decrease a woman's feelings of loneliness, support her in finding the most comfortable position and increase her sense of support and confidence (Karlström et al., 2015; Lundgren & Berg, 2007; Musie et al., 2019). Therefore midwives must be diligent in understanding labor dance themselves and in learning how to support women in all the positions in which labor dance may find a woman Zileni et al. (2017).

Recommendations for Future Research

Dance is a well-researched topic and studies looking at the impact of dance therapy on Parkinson's disease, autism, cancer, mental health, the elderly etc. are abundant. However, as

explained in the introduction of this paper, studies exploring labor dance as a specific tool for pregnancy, labor and birth are few. This review includes only one study which uses the term *labor dance* specifically (Akin & Saydam, 2020). Many studies look at single positions in this context versus an overall view of labor dance throughout the intrapartum experience. Established programs such as Dancing for Birth™ and Dancing thru Pregnancy® could provide ample sample subjects and curricula for research specific to labor dance. Research topics can include the impact of introducing labor dance to decrease rates of medical interventions including primary cesarean, epidural versus labor dance as a tool for pain management and effect of labor dance in various socio-economic demographics.

Next, after surveying 1,154 women in both home and hospital settings to find out which factors affected a woman's birth position, Nieuwenhuijze et al. (2012) determined that midwives play a major role in the process. They concluded that by sharing birth positions with women, midwives create a repertoire of possibilities for women in labor. And, when options for birth positions aren't shared, midwives, "have limited women's perceptions of the available possibilities," (Nieuwenhuijze et al., 2012). To that end, both Nieuwenhuijze et al. (2012) and Thies-Lagergren et al. (2013) ask how midwives counsel patients on birth positions. Future studies analyzing what information on birth positions and labor dance is provided to patients prenatally and how that information is presented would answer this question. This research could validate sound practices and highlight areas for improvement.

Finally, there is a need to consider the stage upon which labor dance occurs. Thies-Lagergren et al. (2020) found that in the home environment, the vast majority of 1649 women felt that they were in control and could work with labor pain on their own terms. Finding comfort through physical position and vocalization were listed as ways which "helped women to be in

command" (Thies-Lagergren et al., 2020). Likewise, outside of the constraints of a medical facility, midwives also expressed having greater autonomy to support labor dance in a home environment (Nieuwenhuijze et al., 2012). Therefore research needs to look at the barriers and bridges to supporting labor dance in a variety of birth settings, i.e. hospital, birth center and home. Results of such research could be utilized to support labor dance in all settings (Thies-Lagergren et al., 2020).

Integration of the Central Concepts in the Midwife-Woman Relationship theory

Built upon the belief that women's childbirth experiences will follow them throughout all of their lives, Lundgren and Berg (2007) developed the Central Concepts in the Midwife-Woman Relationship. They believe that the entirety of a birth experience is essential to its outcomes and should be recognized as such. Components of the birth experience include "pregnancy related factors, complications, expectations, pain, form of organizational care and support." With that understanding, they have elicited six pairs of concepts recommended to guide midwives in the birth space. Each pair includes a perspective from the birthing woman and a response from the midwife.

Surrender & Availability

Surrender. In birth, a woman surrenders to her body, to the process of childbirth, to the needs of her child and to her healthcare team. In surrendering, Lundgren and Berg (2007) found that women feel they can surrender to the process of childbirth and still feel in control.

Availability. In response to the woman's unique needs and the state of her surrender, the midwife needs to be available to support the woman and her choices. This includes having the skills and knowledge to offer and support women in labor dance positions throughout labor. It is

also essential that midwives are available to themselves and their intuition. Lundgren and Berg (2007) write that the midwife's most important tool is herself.

Trust & Mediation of Trust

Trust. Surrender to herself, the birth process and her care team are built upon the foundation of a woman's trust. Yet all trust is not equal. One mother wrote, "I'm more scared by pain and strange feelings caused externally than from those which come internally," (Lundgren & Berg, 2007). A woman who trusts the movements naturally flowing through her body in labor will either be encouraged or hindered by the social and physical world surrounding her.

Mediation of Trust. The midwife must convey to the mother her trust in the birth process and in the woman. This promotes a woman's confidence and builds a sense of safety. This mediation allows women to move as their body directs them to do in labor, without judgement or fear.

Participation & Mutuality

Participation. Participation is the bedrock of sovereignty. And labor dance is one of the most tangible ways that a woman can actively participate in her labor experience. Lundberg and Berg (2007) also define participation as using one's own resources. Though current culture and practice dictate otherwise, the majority of women need little more than their own bodies and intuition for birth. Denying women the opportunity to fully engage with their own labors can leave them unsatisfied and detached from the experience.

Mutuality. Mutuality implies a shared responsibility for the outcome of the birth as defined by Lundgren and Berg (2007). Through open communication and a willingness to let the

woman lead, midwives place themselves as an integral part of the women's experience of sovereignty and satisfaction. And through mutuality, midwives gain the trust of the woman to keep her safe in all circumstances and positions.

Loneliness & Confirmation

Loneliness. Loneliness is experienced in two distinct ways in the childbearing experience. First, despite support from family, friends and healthcare providers, the woman is ultimately responsible for her child and may feel solely responsible for the birth outcome as well. Secondly, women may feel alone when they sense that the midwife isn't fully present for her, either physically or emotionally.

Confirmation. With both emotional and physical proximity to the woman, the midwife confirms that she also holds responsibility for the birth outcomes and that the woman is not alone in her experience. By dancing with the woman herself or modeling for the woman and a partner how to move the laboring body, the midwife enters into the labor experience with the mother, diminishing any sense of isolation.

Differences & Support uniqueness

Differences. Individual choices and birth experiences can single out women whose narrative varies from the cultural and medical norm. Women who bring labor dance into the birth space can be encouraged or hindered depending on the responses they receive to their choice of labor positions.

Support uniqueness. In order to support the unique choices and experiences of women, midwives must wrestle with standardization and safeguard normal birth. Further, they must commit to plasticity when presented with new ways to do old things.

Creation of meaning & Support meaningfulness

Creation of meaning. As women reconcile themselves with their circumstances, they create meaning. Following intuition to move her body in labor while being reinforced by her midwife sets a foundation of knowing for a mother. As the mother learns she can trust her intuition in laboring her child, she builds self efficacy to also raise her child (Bandura, 2010).

Support meaningfulness. As the woman creates meaning through her labor experiences, it is the duty of the midwife to validate these meanings and "to give rise to hope and to focus on normalcy," (Lundgren & Berg, 2007).

Using these six concepts to describe the relationship between midwife and woman creates an open platform upon which labor dance demonstrates its necessity for women in the birth space. While understanding the role these concepts play in the midwife-woman relationship, it is important to remember that while they may lead to a safe, sovereign and satisfying birth experience, it may not be without struggle and conflict. The concepts of surrender, trust and loneliness can be difficult to embrace. Yet, as the midwife is available and supportive, she can help the woman express herself in labor through mind, body and spirit.

Conclusion

Labor dance, a composition of vertical and upright positions, instinctual sways of the hips and woman-directed movement, is highly valuable for labor and birth. Its value is verified by the analysis of twenty eight studies against the Johns Hopkins Research Evidence Appraisal Tool as well as recommendations by ACNM, ACOG and *UpToDate.* This literature review confirms that indeed, labor dance increases safety, sovereignty and satisfaction in the labor and birth experience for women.

Particularly when compared to a supine position, it is very safe. Labor dance is an effective pain management tool. Even in difficult labor and birth situations, labor dance leads to feelings of strength, security, confidence and satisfaction for women. These feelings are a result of the sense of control and autonomy that come with being an active participant in the labor and birth experience, indicative of labor dance. Labor dance can also be used to incorporate partners into the labor and birth experience. And, due to its cost, diversity in movement and ties to all cultures, labor dance has the power to reduce disparities and health inequities.

The midwife plays a significant role guiding a woman to the possibilities of labor dance. Midwives trained and confident in labor dance can introduce it to patients, providing them a palate of movements from which to use in labor. And midwifery led labor dance has been shown to increase satisfaction and confidence for laboring women. However, lack of knowledge and skills earned by the midwife, convenience for the midwife, restrictive environments and medical interventions often rob women of the ability to choose labor dance, denying their informed choice on labor and birth positions.

Using the framework of Lundgren and Berg's (2007) Central Concepts in the Midwife-Woman Relationship theory, this literature review highlights the relationship between a laboring woman to the physical and emotional environment around her. Her partner, her midwife and her own thoughts intersect with the birth space and the physical artifacts therein to create a sacred place for her to birth. In this space, she creates meaning with each move she makes as she searches for safety, sovereignty and satisfaction. When supported and unhindered, her labor dance will lead her there.

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Appendix 1

Source: Abdolahian, S., Ghavi, F., Abdollahifard, S., & Sheikhan, F. (2014). Effect of dance labor on the management of active phase labor pain & clients' satisfaction: a randomized controlled trial study. *Global journal of health science*, *6*(3), 219. https://doi.org/10.5539%2Fgjhs.v6n3p219			
Purpose/Sample	**Design (Method/Instruments)**	**Results**	**Strengths/Limitations**
Purpose: To evaluate the effectiveness of dance labor in pain reduction and women's satisfaction during the first stage of labor. **Sample/Setting:** The study sample included primiparous women aged 18 to 35 years old with single pregnancies, cephalic presentation of fetuses, 38 to 40 complete weeks of gestation, anticipation of a normal birth, and no history of infertility from large general public hospitals of Shiraz University of Medical Sciences, in Fars province- Iran **Johns Hopkins Evidence Appraisal:**	Randomized Control Study with women in the first stage of active-phase labor with cervical dilatation between 4 and 10 centimeters into 2 groups. In the dance labor group, women were instructed to do standing upright with pelvic tilt and rock their hips back and forth or around in a circle while their partner-who was instructed to stand in front of them, massaged their back and sacrum for a minimum of 30 minutes. During these movements, participants were instructed to rest their arms on their partner's shoulders. Women in this group were instructed to remain upright at least for 30 minutes to record pain score. In the control group, the participants could select their own	The mean score of pain severity in the dance labor group was significantly less than that of the control group. There were significant differences between the pain scores of the women in the dance labor group before intervention (p=0,008) and 30 min after intervention (p=0.012) and 60 minutes after intervention (p=0.036) when compared with the pain scores of the women in the control group. The mean satisfaction score in the dance labor group was significantly higher than in the control group. There was a significant difference in the mean scores of satisfaction between the two groups (p=0.021). The SD for the control group was 4.13 ±1.041 and for the dance labor	**Strengths:** Randomized control trial. Although masking of women and their birth attendants was not possible, the person who analyzed the data was not informed about the aim of our study. In the literature there is no study about the effects of dance labor on pain relief and satisfaction of women – this study attempts to fill that gap. **Limitations:** The control group is listed as having received, "usual care during physiologic labor." Usual care isn't described. If women are able to successfully manage their childbirth pain, they may evaluate themselves more satisfactorily than they evaluate the total

Strength: Level I: Randomized Control Trial **Quality:** High: Adequate control, definite conclusions, consistent recommendations based on comprehensive literature review.	position and received usual care during physiologic labor, without ambulating or any intervention. If there was a need for analgesic medication, or if obstetric complications occurred, the participant was immediately referred to an obstetrician and other professionals as needed, then excluded from the study. Pain score was recorded by the participants using a visual analogue scale (VAS) of 0 (lack of pain) to 10 (most severe pain they had experienced). Pain scores were measured in both groups before labor and then obtained every 30 minutes in both groups until cervical dilation reached 10cm. Measurements of satisfaction were accomplished after birth and the mothers in both groups were asked to score their satisfaction about the birth process.	groups, 4.66±0.6609. The significant P value was P=0.021. This study showed no significant difference in the duration of active phase of labor between groups. **Conclusion:** Dance labor which is a complementary treatment with low risk can reduce the intensity of pain and increase mothers' satisfaction with care during the active phase of labor.	experience. Therefore, measuring only total childbirth satisfaction may give an incomplete reflection of women's satisfaction with the childbirth experience History of pain experience was not evaluated but this item could have effects on labor pain score.
Author Recommendations: It might be helpful in future studies if the comfort level of women during dance labor would be evaluated, as opposed to measuring total childbirth experience.			

Further research to determine the effect of dance labor during different stages of labor vs just active labor phase. Clarifying the unclear role of men in labor as birth is the beginning of fatherhood for men and their lack of knowledge causes an unclear role. Evaluate dance movements effectiveness during pregnancy and postpartum period.
Implications: As an effective, low cost and low risk tool for pain relief and patient satisfaction, providers need training to offer dance labor to laboring patients as non-pharmacologic pain relief.

Source:
Akin, B., & Saydam, B. K. (2020). The Effect Of Labor Dance On Perceived Labor Pain, Birth Satisfaction, And Neonatal Outcomes. *EXPLORE*. https://doi:10.1016/j.explore.2020.05.017

Purpose/Sample	Design (Method/Instruments)	Results	Strengths/Limitations
Purpose: To determine the effects of labor dance on perceived birth pain, birth satisfaction, and neonatal outcomes. **Sample/Setting:** One hundred, sixty pregnant women volunteers with no risk during the active phase of labor between 1 April 2017 and 31 October 2017 in Turkey.	An experimental study: Data were collected under three groups during the active phase of labor: the dance practitioner midwife group (DPMG, comprising 40 pregnant women), the dance practitioner spouse/partner group (DPSG, comprising 40 pregnant women) and the control group (CG, comprising 80 pregnant women). During the active phase, pregnant women in DPMG danced with the midwife; pregnant women in DPSG, on the other hand, danced with their spouses/partners	The mean scores of VAS 1 and VAS 2 in DPSG and DPMG were lower than in CG. The fifth and tenth minute Apgar scores and the first, fifth, and tenth minute oxygen saturation levels of the newborns in the experimental groups, as well as the level of birth satisfaction, were significantly higher than in CG. The difference in the pain scores when cervical dilatation was 4 cm was found to be significant ($p = 0.043$). When cervical dilatation was 9 cm, the difference was	**Strengths:** This study was clearly built on the work of previous research on this topic and Humanistic Theory. **Limitations:** Research done in a mother-friendly hospital – additional research should be completed in alternate settings for more generalized results.

Johns Hopkins Evidence Appraisal: **Strength:** Level I: Experimental Study **Quality:** High: Consistent, generalizable results; sufficient sample size for the study design; adequate control; definitive conclusions; consistent recommendations based on comprehensive literature review that includes thorough reference to scientific evidence	throughout the active phase. When vaginal dilatation reached 4 cm and 9 cm, labor pain was measured by employing the visual analog scale (VAS). In the postpartum phase, newborn babies' first, fifth, and tenth minute Apgar scores and oxygen saturation levels were measured and registered. In the first hour after delivery, the Mackey Birth Satisfaction Scale was administered. CG, on the other hand, received only the routine procedures offered in the hospital.	measured with respect to perceived labor pain level between groups ($p = 0.014$). In further analyses (by post hoc Tukey test) this difference was attributed to the significant lowness of DPSG and DPMG pain levels in contrast to CG ($p = 0.01$). The median first minute Apgar score was found to be 9 in DPSG, DPMG, and CG, and there was no statistically significant difference between the groups ($p = 0.91$). The median fifth minute Apgar score was found to be 10 in DPSG, 9 in DPMG, and 8 in CG, and this difference was statistically significant ($p < 0.01$). Further analysis (by post hoc Tukey test) found that this difference arose from the significantly higher Apgar scores of DPSG compared to those of DPMG and CG. Newborns' first minute oxygen saturation levels were 89 in the experimental groups (DPSG, DPMG) and 88 in the	

		control group, and there was a statistically significant difference between the groups ($p = 0.05$). The fifth minute oxygen saturation levels were 99 in the experimental groups and 94 in the control group, and the tenth minute oxygen saturation levels were 99 in the experimental groups and the control group. There was a statistically significant difference in the fifth minute and tenth minute oxygen saturation levels between the groups ($p < 0.01$) Mackey Birth Satisfaction Scale was administered to compare the total mean scores and subdimensions of the scale. Among DPSG, DPMG, and CG, the subdimensions of satisfaction with the self, the baby, the midwife, the doctor, and the birth were respectively found to have a statistically significant difference from the total mean score of birth satisfaction ($p < 0.01$).	

		In further analyses (by post hoc Tukey test) this difference was attributed to the result that in the experimental groups (DPMG and DPMG), the subdimension values of satisfaction with the self, the baby, the midwife, the doctor, and the birth were above the values measured in the control group at a statistically significant level ($p < 0.05$) **Conclusion:** The study showed a positive effect of labor dancing on the labor process. This study and previous studies suggest that pregnant women felt less pain and needed less analgesic aid when supportive care and non-pharmacological methods were applied. Findings obtained in this study also reveal that labor dance renders positive effects not only on newborn babies but also on women giving birth.	

Author Recommendations: In order to popularize labor dance and help pregnant women's families contribute to intrapartum care, it is suggested to conduct dance practices in a wider sampling with other attendants a pregnant woman would ask for (mother, sister, or friend) and in institutions that are not mother-friendly. The pregnant women wanted their midwives' company as much as they needed their families' presence during labor**.**
Implications: One of the most crucial components of labor dance is the physical and emotional support offered during labor. Labor dance is a novel method that helps pregnant women, families, and midwives cooperate during labor and contributes to pregnant women's spouses/partners being able to manage pain experiences during the first phase of labor.

Source:
Campion, M., & Levita, L. (2014). Enhancing positive affect and divergent thinking abilities: Play some music and dance. *The Journal of Positive Psychology*, *9*(2), 137-145. https://doi: 10.1080/17439760.2013.848376

Purpose/Sample	**Design (Method/Instruments)**	**Results**	**Strengths/Limitations**
Purpose: To examine whether mood and divergent thinking processes could be altered even after very short durations of engagement in activity. Most studies examining the effect of music or physical activity on mood and cognition use long durations and sustained engagement, which may not be practical if one wanted to use these approaches in more clinical settings, or to	The experiment used a mixed/split-plot design. The independent variable, activity condition, had four levels (dancing, cycling, music, quiet) and participants were randomly assigned to one of these four conditions. If participants expressed high levels of distress in response to their allocated condition, they were allowed to opt out and were randomly re-assigned to one of the remaining three conditions; this occurred in only 4 (3 of which were female) out of 60 participants tested, all of whom	Dancing and listening to music significantly increased measures of positive affect; Dancing, $T = 6$, $Z = -3.085$, $p = 0.002$; Music, $T = 4$, $Z = -2.936$, $p = 0.003$), but cycling and sitting quietly had no effect on positive mood (Cycling, $T = 34.5$, $Z = -0.780$, $p = 0.436$; Quiet, $T = 16.0$, $Z = -0.787$, $p = 0.431$). There were also significant effects on negative mood ratings, where dancing and listening to music significantly decreased negative affect (Dancing, $T = 2.5$, $Z = -2.736$, $p =$	**Strengths:** The majority of previous studies investigating the effects of dance on non-clinical participants are field experiments, which tend to use individuals already enrolled in dance classes. This study is one of few laboratory-based experiments to use a non-clinical sample. Thus, although participants in this study may present some self-selecting bias, this is likely to be less acute than in field experiments, further extending the evidence for the positive effects

provide a simple way to enhance mood and psychological function in a normal working day. To that end, this study has been designed to examine the impact of engaging in 5 min of dancing, in comparison to listening to music and exercise, on mood and creativity. **Sample/Setting:** Sixty participants were recruited to take part in the study (51 female, 9 male; Age Range = 18–23; Mean age ± SD = 20.4 ± 1.31) from the student population at the University of York **Johns Hopkins Evidence Appraisal:** **Strength:** Level I: Experimental **Quality:** High:	objected to being in the dance condition. These participants were excluded from the data analysis as they wanted to be reassigned to another experimental condition, hence the final number of participants included in data analysis was 56 (47 female, 9 male; Age Range = 18–23; Mean age ± SD = 20.4 ± 1.34), and final group numbers were: Dancing = 15, Cycling = 14, Music = 14, Quiet = 13. There were four experimental conditions: dance ('free' movement with music), cycling (specific movement with music), music (no movement, just music) and quiet (no movement, no music). Participants were randomly assigned to one of these four conditions, and were asked to complete tests of mood and creativity before and after engaging with their assigned activity, which they performed alone in a room, eliminating social interaction as a possible confound. Heart rate was	0.006; Music, T = 0.00, Z = −2.555, p = 0.011). There was a trend for a similar reduction in negative affect in the cycling condition (T = 9.5, Z = −1.860, p = 0.063) and the sitting quietly condition (T = 11, Z = −1.723, p = 0.085), but these did not reach statistical significance. Only participants in the dancing and listening to music conditions had significantly reduced feelings of fatigue (Figure 1(B); Dancing, T = 13, Z = −2.678, p = 0.007; Music, T = 0.00, Z = −2.952, p = 0.003). Greater enjoyment was reported by participants in the dance condition in comparison to participants in the quiet condition (U = 24.0 Z = −3.488, p = 0.001). **Conclusion:** Participants who engaged in 5 min of dance showed significant improvements in emotional wellbeing, as measured by an increase in positive	of dance on well-being. Measuring both positive and negative affect in the study offers a wider perspective on how mood can be altered than previous research. Previous research has tended to focus on physical activity lasting 30 min, while the present study demonstrates that even 5 min of either dancing or listening to music is effective in enhancing emotional well-being. **Limitations:** It would be advantageous to investigate whether particular types of dance have different effects as well as varying the genre, style and tempo of the music. The sample was predominantly young and female and it is quite possible that a different and larger cohort may have yielded different results.

Consistent, generalizable results; sufficient sample size for the study design; adequate control; definitive conclusions; consistent recommendations based on comprehensive literature review that includes thorough reference to scientific evidence	measured before and after engagement with assigned activity to control for the possible confounding effect of different levels of physical exertion between the experimental conditions. 'Do Your Thing' by Basement Jaxx (2001), which was edited to last 5 min and was played on computer speakers, at 74 dB. In addition, in the cycling condition, a stationary bicycle was set to a moderate resistance setting and the height was adjustable to accommodate all participants. This same piece of music was used in the dancing, cycling and music conditions.	affect and a decrease in negative affect. In addition, taking part in the dance condition significantly reduced reported levels of fatigue. This is noteworthy, given that heart rate measures were equally elevated in both dance and cycling conditions, yet cycling did not significantly affect mood and increased feelings of fatigue.	What is more, though there were no differences in physiological arousal between the dance and cycling conditions, the quality of the movement in these activities is notably different. That is, dance allows freedom to move and uses the whole body while cycling is much more restrictive. Moreover, dancing marries music and movement while cyclists were asked to cycle independently of the music. It is possible, then, that this instruction could have impacted the results and could offer an alternative explanation as to why such different effects were found between the dance, music and cycling conditions. Nevertheless, as people tend to implicitly follow the beat of the music they are listening to when exercising, it is highly likely that they also did so in this study, although, this needs to be empirically investigated.
Author Recommendations: Furthermore, the finding that listening to an upbeat song for 5 min can be so efficacious bodes well for using this procedure for positive mood induction and enhancement of divergent thinking abilities. Dancing is not for everyone, it is both physically challenging and it is an activity that may make some people feel anxious and less confident about taking part,			

especially as they get older. This is supported in this study by the fact that, in comparison to the music and quiet conditions, participants in the dance condition felt much more awkward dancing for 5 min in a room by themselves. Interestingly, this was also the case for the cycling condition. However, in contrast to the cycling condition, it is worth noting that in spite of these feelings of awkwardness, engaging in dancing still significantly increased their feelings of emotional well-being
Implications: These findings could offer encouragement for people who are unaccustomed to or have little time for exercise. Starting small could be less intimidating than the recommended 30 min of exercise for psychological and physical health benefits and could result in significant positive changes, which may encourage longer-term participation. What is more, the finding that cycling has no effect on fatigue while dancing decreases it is striking, and though this needs to be replicated, it could offer valuable insight into the types of activity that could be most effective with non-clinical and clinical populations.

Source:
Gizzo, S., Di Gangi, S., Noventa, M., Bacile, V., Zambon, A., & Nardelli, G. B. (2014). Women's choice of positions during labour: return to the past or a modern way to give birth? A cohort study in Italy. *BioMed research international*, *2014*. https://doi.org/10.1155/2014/638093

Purpose/Sample	**Design (Method/Instruments)**	**Results**	**Strengths/Limitations**
Purpose: To compare patients spending in a recumbent position more than 50% of labour to those assuming a preferred alternative position (vertical position) in terms of intrapartum, maternal/fetal, and neonatal outcomes. The second aim of the study was to establish if differences exist among two groups in terms of fetal head rotation rate from OP to OA.	Conducted was an observational cohort study on women at pregnancy term. Primiparous women with physiological pregnancies and single cephalic fetuses were eligible for the study. We considered data about maternal-general characteristics, labour process, type of delivery, and neonatal wellbeing at birth. Patients were divided into two groups: Group-A if they spent more than 50% of labour in a recumbent position and Group-B when in alternative ones (upright,	Significant differences between the groups in terms of labour length, Numeric Rating Scale score and analgesia request rate, type of delivery, need of episiotomy, and fetal occiput rotation. No differences were found in terms of neonatal outcomes. Group-B patients assumed the upright position in 46.1% of the cases, the sitting position in 21.1% of the cases, the "on all fours" position in 16.2% of the cases, and a balloon-	**Strengths:** First study assessing the role of maternal labouring vertical position in occiput rotation from OP to OA demonstrating its real benefit on labour process and delivery. **Limitations:** **S**ample did not allow discrimination for which vertical position is preferred. Results about vertical positions need to be further confirmed by large cohort studies and do not solve the existing debate.

Sample/Setting: 225 pregnant women admitted to the delivery room of University of Padua (Italy), Woman and Child Health Department, in the interval time between January 2013 and December 2013. Primiparous women with uncomplicated pregnancies and single fetuses in cephalic presentation before or at the onset of labour were eligible for the study. **Johns Hopkins Evidence Appraisal:** **Strength:** Level II: Observational Cohort **Quality:** High: Consistent, generalizable results; sufficient sample size for the study design; adequate control;	squatting, sitting on the ball, or "on all fours" position), (69 in Group-A and 156 in Group-B). All eligible patients received exclusively a midwifery intrapartum care, except for urgent CS or operative vaginal deliveries cases. All eligible patients assumed a spontaneous position without any medical or midwifery prescription.	squatting position in 16.6% of the cases. Significant statistical differences were found in the length of both first and second labour stages (mean value of 336.1 ± 161.1 versus 192.1 ± 125.8; 84.4 ± 57.8 versus 34.4 ± 32.6 minutes, resp. $P < 0.001$); between two groups (Group-A versus Group-B). Significant differences in terms of pain level with a mean NRS score of 7.1 ± 1.6 versus 3.7 ± 1.2 were, respectively, detected (). The two groups significantly differed for the analgesia request rate, respectively, with 34.8% versus 9.6% rate ($P < 0.001$). Regarding the mode of delivery, 47.8% of Group-A patients delivered by vaginal route, 26.1% required operative vaginal delivery, and 26.1% underwent CS. Group-B patients delivered in 87.1% by vaginal route and required operative vaginal delivery in	

definitive conclusions; consistent recommendations based on comprehensive literature review that includes thorough reference to scientific evidence.		7.1% and CS in 5.8% (P<0.001). In Group-A, dystocia occurred in 13.05% of the cases and abnormal fetal heart rate in 13.05% of the cases while in Group-B this condition occurred, respectively, in 0.7% and 5.1% (P<0.05) Episiotomy was performed in 100% of Group-A patients who delivered by vaginal route compared to the 32.7% of Group-B (P<0.001), while 1st-2nd degree vaginal tears occurred, respectively, in 5.9% versus 49% of the cases (P<0.001); no differences between two groups in terms of neonatal outcomes were reported. Significant differences in terms of OP persistence at delivery were also found in those delivering vaginally: in Group-A patients, OP persisted till birth in 39.6% of the cases while in Group-B only in 28% of the cases (P<0.001). Different obstetrical manoeuvres have	

		been proposed to facilitate the fetal head rotation from OP to OA (oxytocin augmentation and manual rotation), but none resulted in being more effective than maternal vertical position during labour **Conclusion:** Alternative maternal positioning may positively influence the labour process reducing maternal pain, operative vaginal delivery, caesarean section, and episiotomy rate. Women should be encouraged to move and deliver in the most comfortable position.	

Author Recommendations:
In absence of pre labour or intra labour complications, the alternative vertical positions may positively influence labour process reducing maternal pain and operative vaginal delivery, CS, and episiotomy rate.

Although further studies in this field are mandatory and most theoretical speculations need to be clarified, in absence of prepartum/intrapartum maternal-fetal complications, all women should be encouraged to move and to deliver in the most comfortable position, preferring a vertical position when OP is diagnosed.

Implications:
The upright position takes advantage of the gravity, increased size of the pelvic diameter, thanks to the nutation movement and to the coccyx retropulsion, the decline of the extreme cephalic, less painful and more effective contractions, pain relief for reduced pressure on the sacrum, increased confidence in the second labour stage, and lower perineum stretch. The sitting position takes advantage of gravity, on use of lumbar massage, and on an increased pelvic diameter with better fetal alignment to the pelvis, but it may increase the pressure on the sacrum with a major risk of perineal trauma. The “on all fours” position reduces the effect of gravity, the peak and duration of the contractions, and the pain due to a lower fetal pressure on the pelvis; it allows practicing the lumbar massage and favors the fetal internal rotation. This is

the most recommended position to correct and prevent fetal malposition, to reduce cervical edema and the sacral pressure of the presenting part, and to increase the pelvic anteroposterior diameter in the expulsive phase. The squatting position allows using gravity, increasing the pelvic diameters and the counternutation for the fetal head descent, and strengthening the feeling of thrust and relaxation of perineal muscles.

Source:
Gönenç, İ. M., & Dikmen, H. A. (2020). Effects of Dance and Music on Pain and Fear During Childbirth. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, *49*(2), 144-153. https://doi.org/10.1016/j.jogn.2019.12.005

Purpose/Sample	Design (Method/Instruments)	Results	Strengths/Limitations
Purpose: To test the effects of dance and music and music alone on pain and fear during the active phase of labor among nulliparous women. **Sample/Setting:** A maternity and children's hospital in Konya Province, Turkey. A total of 93 nulliparous, pregnant women who were in the active phase of labor at term gestation with single fetuses in cephalic presentation. The inclusion criteria for participation were nulliparity, single fetus in the	Single-blind, randomized, controlled study. Patients were randomly assigned to one of three groups: dance and music, music alone, and usual care (control). Data was collected four times during labor using a personal information form, labor monitoring form, visual analog scale (VAS), and Version A of the Wijma Delivery Expectancy/Experience Questionnaire (W-DEQA) to measure fear.	Based on multivariate analysis of variance, the effect of time and study group interaction on VAS and W-DEQA scores was statistically significant ($p < .05$), and the effect of study groups and time on VAS scores was statistically significant ($p < .05$). The effect of the study groups on W-DEQA scores was statistically significant ($p < .05$), but there was no statistically significant effect of time on W-DEQA scores ($p > .05$). **Conclusion:** Dance and music and music alone significantly reduced pain and fear in nulliparous women during the active phase of labor. These interventions are easy	**Strengths:** Randomized, controlled study. Discussion of gate-theory describes the mechanism by which decreased pain may occur. Adds to the body of knowledge on the use of dance and music in labor. **Limitations:** Study conducted in a single hospital in a homogeneous sample of nulliparous women, limiting the generalizability of our results. Because pain and fear is only measured for 90 minutes during the early active phase of labor, the effect of dance and music throughout the duration of active labor is not evaluated.

cephalic position at 38 to 42 weeks gestation with fetal weight of 2,500 to 4,000 g estimated by sonography, normal fetal heart rate, anticipation of normal birth, and active phase of the first stage of labor (3–7 cm dilatation) without use of analgesia or anesthesia. **Johns Hopkins Evidence Appraisal:** **Strength:** Level I: randomized controlled trial (RCT) **Quality:** High: Consistent, generalizable results; sufficient sample size for the study design; adequate control; definitive conclusions; consistent recommendations based on comprehensive literature review that includes thorough reference to scientific evidence.		for nurses and midwives to use, affordable, and effective, and they enable a woman and her partner to be actively engaged in the woman's care.	Lack of allocation concealment and not using the intention-to-treat population. In the dance and music intervention, the researcher is intimately involved in the provision of support to the woman in labor, which may represent a significant additional intervention of human presence, such that the dance and music intervention is actually dance, music, and support.

Author Recommendations:
The inclusion of music and dance in routine care for women during labor is recommended. And the maternity nurse responsible for the care of a woman in labor could implement these interventions; thus, no additional staff is required.

Informing women about dance and music and music alone during the antenatal period and preparing them to use these methods may increase their effects.

Implications:
Dance and music and music alone can reduce or may completely suppress the sensation of pain during labor in some women. The use of these nonpharmacologic methods by nulliparous women may help them feel that they are in control of their pain and strengthen their sense of having an active role during labor.

Dance and music and music alone are easy to use, affordable, and can be easily taught to pregnant women to reduce pain and fear of labor and promote relaxation, even in the busiest labor and birth settings.

These nonpharmacologic methods offer safe interventions for the mother and fetus and may decrease the use of invasive pharmacologic methods of pain management during labor.

Source:
Zhang, H., Huang, S., Guo, X., Zhao, N., Lu, Y., Chen, M., ... & Yang, Y. (2017). A randomized controlled trial in comparing maternal and neonatal outcomes between hands-and-knees delivery position and supine position in China. *Midwifery*, *50*, 117-124. https://doi.org/10.1016/J.MIDW.2017.03.022

Purpose/Sample	Design (Method/Instruments)	Results	Strengths/Limitations
Purpose: To examine the differences in maternal and neonatal outcomes among low-risk women who gave birth either in the hands-and-knees position or the supine position. **Sample/Setting:** Conducted in 11 hospitals in China from May to December in 2012. In total,	A randomized controlled trial was conducted. Women were randomly allocated to either the experimental group (n=700, 446 completed the protocol) who delivered in hands-and-knees position and the control group (n=700, 440 completed the protocol) who delivered in supine position. Women who could not maintain the randomized position during the second stage of labor were allowed	Compared with the supine position, the hands-and-knees position had a higher rate of intact perineum (33.2% and 14.8%, $\chi2 = 41.11$, $p < 0.001$), a higher rate of first degree laceration (56.3% and 41.8%, $\chi2 = 18⊡53$, $P < 0.001$) and a lower rate of episiotomy (1.8% and 37.7%, $\chi2 = 181⊡21$, $p < 0.001$). Adjusted for maternal age, gestational age,	**Strengths:** A multicenter, randomized, controlled trial with a large sample size. Large scale study confirms findings of smaller studies. **Limitations:** Study used a per protocol approach instead of an intention-to-treat to analyze the data. Unexpectedly large numbers of women (n=514, more than one

1400 women were recruited. 886 women completed the protocol whereas 514 withdrew from the study as could not comply with the allocated intervention during the delivery. The inclusion criteria included a healthy, uncomplicated pregnancy without any diagnosed medical conditions, anticipation of a vaginal delivery, expectation of no epidural anesthesia with a singleton fetus in cephalic presentation, longitudinal lying, and spontaneous onset of labor occurring between gestational weeks 37+0 and 41+6 and a Body Mass Index (BMI) of less than 30. **Johns Hopkins Evidence Appraisal:**	to withdraw from the study. The women in the experimental group were given assistance with the free position during the first labor stage and maintained a hands and-knees position for delivery during the second stage, with the head of the bed raised by 30 to 60 degrees. The woman was assisted into the prone position, kneeling down on cushions with the support of her palms. Those women who presented with carpal tunnel syndrome were instructed to support themselves with their fists. The woman was instructed to hold this pose for 15–30 minutes and then rest in the semi-recumbent position or lateral position for 5–10 minutes, which was repeated until she delivered her baby in the hands-and-knees position at the end of the second stage of labor. If she felt it uncomfortable, a participant was free to shift from the hands-and-knees position to a more comfortable one, and then encouraged to try it again later. If	parity, duration of second stage of labor and birth weight, the hands-and-knees position reduced the need for episiotomy (OR=0.024, $p < 0.001$). The duration of the second stage of labor was longer in the experimental group [45.3 (SD 35.4)] than in the control group [32.1 (SD 26.8)], with a statistically significant difference ($t=4.58$, $p < 0.001$). However, there were no statistically significant differences between the groups in duration of the third stage of labor ($t=2.64$, $p=0.008$). The postpartum bleeding amount between the two groups was not statistically significant ($t=0.63$, $p=0.525$). Moreover, all women in the experimental group had spontaneous vaginal births without shoulder dystocia, although there were 4 cases of shoulder dystocia (Fisher's exact test=0.060) and 6 cases of emergency caesarean section during the second	third in each arm, 37% attrition rate) were unable to maintain the randomized delivery position during the second stage of labor, which may have affected the representativeness of the sample being analyzed. A double blind method was not possible due to the nature of the intervention; observation might have affected such outcomes, such as the rate of episiotomy or duration of the second stage of labor even though all the midwives were well trained to deliver the babies and to treat all women equally. Participants' perception of the hands-and-knees position was not explored, which limits the qualitative evidence.

Strength: I, Randomized Control Trial **Quality:** High	being in the position produced any negative impacts on the fetal heart rate pattern or maternal blood pressure, it was discontinued.	stage of labor (Fisher's exact test=0.015) in the control group. In terms of the 1 minute and 5 minute Apgar score, there was no significant difference between the groups (Table 5). The same was true of the rate of neonatal asphyxia in the experimental and the control groups (1.6% (7/446) versus 2.3% (10/446)). In addition, there was neither maternal death nor neonatal death in either group. **Conclusion:** This study provides clinical evidence that women who delivered in the hands-and-knees position had a statistically significant lower rate of episiotomy and a higher rate of intact perineum, a lower rate of emergency caesarean section, an no increased rates of neonatal asphyxia, shoulder dystocia or amounts of postpartum bleeding. The understanding of the effectiveness of the hands-and-knees position could help to	

		promote its use in clinical practice.	

Author Recommendations:
The hands-and-knees position should be offered as a routine birth position for women. Healthcare professionals, such as midwives and nurses, need to be trained in supporting women to take the hands-and-knees position into their daily practice.

Both midwives and obstetricians are suggested to learn the skills to assist women with delivery in this position.

Implications:
Clinical observation showed that women in the supine position were more likely to suffer from severe perineum swelling during the pushing process which could be relieved when shifted into the hands and-knees position. These observations suggest that the hands-and knees position could improve blood circulation and relieve the swelling of the perineum. The better blood circulation could also protect the fetus.

The low compliance in this study was potentially due to routine continuous electronic fetal monitoring and inadequate dietary intake. Continuous electronic fetal monitoring constrained participants' mobility, whereas inadequate dietary intake resulted in poor energy and tiredness, which made the position hard to maintain. Cushions acting as shock absorbers, and a frequent change of positions between hands-and knees position and other more comfortable ones, may lead to a greater acceptability

Source:
Zhang, H. Y., Shu, R., Zhao, N. N., Lu, Y. J., Chen, M., Li, Y. X., ... & Zhang, X. L. (2016). Comparing maternal and neonatal outcomes between hands-and-knees delivery position and supine position. *International Journal of Nursing Sciences*, *3*(2), 178-184. https://doi.org/10.1016/j.ijnss.2016.05.001

Purpose/Sample	**Design (Method/Instruments)**	**Results**	**Strengths/Limitations**
Purpose: To comprehensively examine the benefits of the hands-and-knees position over the supine position during delivery. **Sample/Setting:**	A total of 446 pregnant women who gave birth in the hands-and-knees position were assigned into the experimental group, and 440 women who gave birth in the supine position were classified into the control group. Episiotomy rate was evaluated as the	Women in the experimental group achieved lower rates of episiotomy and higher rates of intact perineum and first-degree perineum lacerations compared with those in the control.	**Strengths:** Multicenter, randomized, controlled trial. Large sample size. **Limitations:** The large number of women who withdrew from the study potentially affected the

Clinical study was conducted in 11 hospitals in China from May to December 2012. Four hospitals presented insufficient cases because both midwives and women in delivery doubted the safety of the hands-and-knees position. Six hospitals recruited more than 50 cases per group. A total of 886 pregnant women participated in the study. Inclusion criteria included a) having a healthy, uncomplicated pregnancy without any medical diagnosis; b) anticipating vaginal delivery of a singleton fetus in cephalic presentation and longitudinal lie and spontaneous onset of labor at gestational weeks between (37 + 0) and (41 + 6); and c) The body-mass index (BMI) of less than 30.	primary outcome, and perineum laceration degree was considered the secondary outcome. In the experimental group, the heads of the delivery beds were increased to 30°–60° from the horizontal. Each subject was assisted to assume the prone position while kneeling on cushions with the support of her palms or fists (for women with carpal tunnel syndrome). The subject held this pose for 15–30 min and then rested in the semi-recumbent or lateral position for 5–10 min. The process was repeated until the end of the second stage of labor and finally delivered the babies in the hands-and-knees position. The subjects who found the position uncomfortable were allowed to assume another more comfortable position but were encouraged to attempt the hands-and-knees position again at a later time.	Postpartum bleeding amount, neonatal asphyxia, and APGAR scores at 1 and 5 min were not significantly different between the two groups i.e. did not increase Conclusions This study proves that women who delivered in the hands-and-knees position achieved low rates of episiotomy and intact perineum. Moreover, the rates of neonatal asphyxia and postpartum bleeding did not increase. Compared with women who lay supine during delivery, those who assumed the hands-and-knees position attained higher rates of intact perineum (14.8% and 33.2%, respectively) ($\chi^2 = 41.11$, $p < 0.001$), higher rates of first degree laceration (41.8% and 56.3%, respectively) ($\chi^2 = 18.53$, $p < 0.001$), and lower rates of episiotomy (37.7 % and 1.8%, respectively) ($\chi^2 = 181.21$, $p < 0.001$). The rate of	power of the investigation. The main reasons behind the withdrawals from the experimental group included knee pain and discomfort while maintaining the hands-and-knees position during labor. Some midwives also complained of the need for additional helpers when adopting such position. This problem may be due to the fact that women were forced to deliver on a labor bed, which was designed to be excessively high and narrow; the women were not allowed to deliver on land where they could move freely. Inability to apply the double-blinded method because of the nature of the observation entailed. Perceptions of the participants with regard to assuming the hands-and-knees position were not explored, thereby limiting the qualitative evidence that may be used to convince other mothers to consider such position.

Johns Hopkins Evidence Appraisal: **Strength: Level I:** Randomized Control Trial **Quality:** High Consistent, generalizable results; sufficient sample size for the study design; adequate control; definitive conclusions; consistent recommendations based on comprehensive literature review that includes thorough reference to scientific evidence.		second-degree laceration between the groups was not statistically significantly different. Participants in the experimental group underwent spontaneous vaginal births, whereas four cases of shoulder dystocia were recorded in the control group ($\chi^2 = 4.07$, $p = 0.04$). Logistic regression analysis also revealed that the hands-and-knees position was a protective factor for episiotomy. **Conclusion:** Women who delivered in the hands-and-knees position achieved low rates of episiotomy and intact perineum. Moreover, the rates of neonatal asphyxia and postpartum bleeding did not increase. Pregnant patients who prefer to adopt the hands-and-knees position should be assisted in assuming such position during delivery. Clinical observations showed that women	

		who give birth in the supine position were more likely to suffer severe perineum swelling during the pushing process, which could be mitigated when the women shift to the hands-and-knees position. Hence, the hands-and-knees position could improve blood circulation and relieve perineal swelling. The enhanced blood circulation could also protect the fetus.	

Author Recommendations:
The effect of the hands-and-knees position on preventing perineum trauma must be investigated in future studies.

Further investigations must focus on comparison between the hands-and-knees position and other upright positions in terms of maternal and neonatal outcomes, implementation of the hands-and-knees delivery position in different locations (bed, land, or water birth), and effect of the hands-and-knees position on women with cephalopelvic disproportion and breech birth. In addition, future studies must also explore the perceptions of mothers who assume the hands-and-knees position for encouraging midwives to provide additional care to the mothers during labor.

Implications:
Understanding of the effectiveness of the hands-and-knees position could help promote the use of this position in clinical practice.
Healthcare professionals, such as nurses and midwives, must be trained to support pregnant patients in assuming the hands-and-knees position and encouraged to incorporate the position in their daily clinical practice.

Source:
Tzeng, Y. L., Yang, Y. L., Kuo, P. C., Lin, Y. C., & Chen, S. L. (2017). Pain, anxiety, and fatigue during labor: A prospective, repeated measures study. *Journal of nursing research*, *25*(1), 59-67. https://doi: 10.1097/jnr.0000000000000165

Purpose/Sample	**Design (Method/Instruments)**	**Results**	**Strengths/Limitations**

Purpose: To investigate the interrelationships among intrapartum pain, anxiety, and fatigue relative to the mode of delivery, with or without epidural analgesia (EDA). **Sample/Setting:** **Johns Hopkins Evidence Appraisal:** **Strength:** Level I: Quasi Experimental **Quality:** Good: Reasonably consistent results; sufficient sample size for the study design; fairly definitive conclusions; reasonably consistent recommendations based on fairly comprehensive literature review that includes some reference to scientific evidence		Throughout the process of labor, pain, anxiety, and fatigue were significantly correlated, no matter whether participants had received EDA, especially during Phases 1 and 3. For the participants undergoing EDA, the level of fatigue decreased more slowly than the levels of pain and anxiety. The participants who received EDA had significantly greater pain and fatigue in Phase 1 of labor than those who did not receive EDA. Mode of delivery was correlated with age, parity, and pain level in Phase 2 of labor and anxiety level in Phase 2 of labor. For the EDA group, reported levels of anxiety and fatigue decreased in parallel with the decrease in pain. The severity of symptoms increased moderately from Phases 2 to 3, and the sensations of pain and anxiety decreased after delivery, but the level of fatigue remained constant. Participants in the EDA group perceived significantly less pain throughout the	**Strengths:** Besides clarifying the link among pain, anxiety, and fatigue throughout the labor process, the study findings may be used as a reference to develop interventions to manage these three concurrent multiple symptoms during labor. **Limitations:** Participants were all healthy and had normal obstetric parameters, which may limit the generalization of the results to all pregnant women. The study was hospital based, which may have influenced the birth experience of participants. Thus, the results might not be generalizable to women who receive other types of maternity care. Only several of the possible

		remainder of the course of labor than those who did not have EDA ($p <$ .05). The EDA group also had a lower level of anxiety in Phases 2 and 3 ($p < .05$), resulting in less fatigue than in Phase 3 compared with the gravidas who did not receive EDA ($p < .05$). Interestingly, the levels of pain, anxiety, and fatigue in participants in the EDA group were higher than those in participants in the no-EDA group at a cervical dilation of 2–4 cm (Phase 1). After adjusting for other confounding factors, whether EDA was administered had no influence on the mode of delivery ($p > .05$). **Conclusion:** Intrapartum pain, anxiety, and fatigue were strongly interrelated. Intrapartum pain management (EDA) led to a significant decline in anxiety and fatigue. Furthermore, fatigue accumulated during the course of labor and was not easily diminished. These findings provide a reference for maternity nurses to develop strategies for managing multiple symptoms.	factors influencing the decision to adopt EDA were considered, namely, pain, anxiety, and fatigue in the latent phase of delivery. Other factors may have influenced their decision. The study used the VAS to collect data. The lack of objective measures may thus have limited the validity of the results. However, pain, anxiety, and fatigue are highly subjective, and the accessibility and convenience of having participants self-report symptoms have irreplaceable clinical value.

Author Recommendations:
We note that fatigue is cumulative, such that it is not easily reduced during the labor process. After birth, the fatigue level of both groups was higher than that in Phase 1 (latent phase) and became the strongest of the three symptoms. This finding is consistent with previous reports that childbearing fatigue accumulated in a typical "snowball effect". The persistently high level of fatigue in the early postpartum period may result in an unpleasantly exhausted mother at the very beginning of her maternal role, suggesting that healthcare professionals encourage appropriate rest and nutrition during this critical period to restore the physical status of women after childbirth, thus helping them regain sufficient energy to execute maternal tasks.

Our analysis showed that participants who received EDA had significantly higher pain and fatigue levels in Phase 1 of labor than the participants who did not. One reason may be that fatigue, in addition to pain, plays an important role in the decision to request EDA. In view of the positive correlations among pain, anxiety, and fatigue, lowering fatigue levels may help women retain energy to deal with labor pain and may reduce the demand for pharmacological analgesia. Furthermore, lessening fatigue may leave women with sufficient energy in the second stage of labor to enhance their sense of achievement and self-fulfillment with childbirth. An effective intervention to relieve fatigue may be to reduce anxiety by nonpharmacologic strategies such as relaxation techniques. This study did not examine the related cause-and-effect relationships. Thus, it is suggested that future studies work to determine the causality of symptoms during labor.

Nurses should provide interventions in this period such as recommending that new mothers eat an easily digested, high-caloric diet; providing a relaxing environment; and helping women obtain good-quality sleep. The goal of these interventions is to restore the physical status of women after childbirth, thus helping to ensure that postpartum women have the energy necessary to execute maternal tasks.

Implications:
Our study showed that reducing labor pain results in decreased anxiety and fatigue. This finding is consistent with the unpleasant symptom theory, namely, that changing the level of one symptom influences the levels of other symptoms

With or without EDA pain management, the three concurrent symptoms of pain, anxiety, and fatigue tended to develop in a consistent way. In both groups, an increase or decrease in the intensity of any one symptom increased or decreased the respective intensity of the other symptoms. Care providers need to be aware of the presence of symptom clusters and their possible adverse synergistic effects.

The results herein further indicate that women with high-intensity pain in the early active phase of labor (no EDA) were less likely to have vacuum-assisted delivery, whereas women who used EDA were more likely to have vacuum-assisted delivery. This result is consistent with reports that EDA is associated with instrumental deliveries. Furthermore, participants with higher anxiety during the early active phases of labor were associated with increased use of vacuum-assisted delivery. This association may be because of anxiety increasing muscle tension, thereby affecting the bearing down effect and suggesting the necessity of decreasing maternal anxiety during labor.

Given the potential long-term effects of traumatic events such as particularly painful childbirth on mental well-being, efforts to identify and ameliorate those symptoms may improve the intrapartum experience.

Source: Valiani, M., Rezaie, M., & Shahshahan, Z. (2016). Comparative study on the influence of three delivery positions on pain intensity during the second stage of labor. *Iranian journal of nursing and midwifery research*, *21*(4), 372.https://doi: 10.4103/1735-9066.185578			
Purpose/Sample	**Design (Method/Instruments)**	**Results**	**Strengths/Limitations**
Purpose: To investigate the effect of laying the mother in three labor positions on the pain severity in the second, third, and fourth stages of labor. **Sample/Setting:** 96 primiparous pregnant women randomly selected through convenient sampling from those who were hospitalized in the hospitals of Isfahan and Jahrom. Women with a gestational age of 37-42 weeks, singleton pregnancy, who had passed the first labor stage through physiologic process, and with cephalic	The subjects were randomly allocated to be in the groups of lithotomy, sitting, and squatting positions. Pain severity in the second, third, and fourth labor stages was measured with visual analog scale (VAS) as well as McGill present pain intensity (PPI). The data were collected through interviews and observations with the help of VAS. The data were analyzed by Chi-square and Kruskal–Wallis statistical tests. *Position of lithotomy* in the present study was in such a way that the mother was in a supine position with 30° head elevation and bent knees. *Sitting position* was a position in which the mother sat on the labor chair in such a way that	In the latent phase of the second labor stage, mean pain severity in lithotomy (2.27) and squatting positions (2.48) was significantly less than the mean pain severity in sitting (5.33) position (P = 0.001). Pain severity in the active phase of the second and third labor stages was significantly less in squatting position (6.14) group compared to the other two groups (7.59 and 7.41 in sitting and lithotomy positions, respectively) (P = 0.024). Pain severity in the fourth labor stage showed no significant difference in all three groups. In the present study, in the active phase of the second labor stage, six subjects in sitting position group	**Strengths:** Comprehensive literature review **Limitations:** Limited sample size Older resources listed

presentation were selected. **Johns Hopkins Evidence Appraisal:** **Strength:** Level I: Randomized Control Trial **Quality:** Good: Reasonably consistent results; sufficient sample size for the study design; some control, fairly definitive conclusions; reasonably consistent recommendations based on fairly comprehensive literature review that includes some reference to scientific evidence.	her lumbar spines were completely straight and the hip and knee joints were at the same level. In the *squatting position,* the mother was sitting on her feet so that her sole was in touch with the floor and the knee joints were higher than the hips. Delivery and supervision of its stages were conducted by the researcher. The mothers were thoroughly supported emotionally and mentally and were never left alone.	(18.8%) and four subjects in lithotomy group (12.5%) reported their pain as killing pain, while in the squatting group, no subject reported their pain as killing pain **Conclusion:** Application of various labor positions as one of the non-medicational methods to reduce pain in the second and third stages of labor leads to labor pain reduction.	
Author Recommendations: Application of positions such as squatting during the second labor stage can positively affect labor pain reduction. This easy, applicable, and cost-effective method is suggested. It is also suggested to educate the mothers concerning all childbirth positions and let them select each of the positions voluntarily.			
Implications: Further studies can clarify the advantages and disadvantages of all positions, especially sitting positions, since in the present study, a longer second stage was observed in this position more than in other positions. Perhaps, mothers' positioning in sitting positions is adequate only at the time of pushing in the second labor stage and positioning the mother in this position from the very beginning of the second stage is not necessary.			

Source:

Hodnett, E. D., Stremler, R., Halpern, S. H., Weston, J., & Windrim, R. (2013). Repeated hands-and-knees positioning during labor: a randomized pilot study. *PeerJ*, *1*, e25. https://doi.org/10.7717%2Fpeerj.25			
Purpose/Sample	**Design (Method/Instruments)**	**Results**	**Strengths/Limitations**
Purpose: 1) to provide an estimate of enrolment rates; 2) to assess compliance with the study protocol by participants and care providers; 3) to obtain women's views about their experiences using the hands-and-knees position; and 4) to provide estimates of treatment effects to inform the sample size calculation for a large trial. **Sample/Setting:** 30 nulliparous women in labor at term, nulliparous; ≥37 weeks gestation; in established early labor; anticipating a vaginal delivery of a single fetus in the cephalic	Pilot study at two North American hospitals. In ten months of recruitment, 30 nulliparous women at term labor were randomly allocated to either usual care (use of any position during labor except hands-and-knees) or to try hands-and-knees for 15 min every hour during labor. Data were collected about compliance, acceptability, persistent back pain, intrapartum interventions, and women's views of their experiences. Randomization was centrally controlled and concealed, using www.randomize.net. Measuring compliance: Women in the hands-and-knees group would try the position at least three times during the hourly intervals between randomization and delivery, and women in the usual care group would not try hands-and-knees positions. At hourly visits, a nurse checked the paper "clocks" and inquired if the participant had used the hands-and-knees position during the previous hour.	Hands-and-knees position was used 3 or more times by 9 of the 16 women in the hands-and-knees group. Two in the usual care group reported they used hands and knees position once during labor. Twenty seven women used regional anesthesia: 15 in the hands-and-knees group and 12 in the usual care group. Eleven in the hands-and-knees group and 14 in the usual care group had spontaneous vaginal births One woman in the hands-and-knees group had a vacuum extraction. A total of 299 hourly ratings of persistent back pain were obtained from the 30 participants. No discernable pattern was evident in	**Strengths:** Randomized pilot study based on results from first randomized pilot study. Training provided for obstetrical and nursing staff. **Limitations:** Low recruitment rate. Compliance was sub-optimum (Only 9 participants in the hands-and-knees group achieved pre-set level of compliance, i.e. at least three attempts in the position. Two in the usual care group violated the protocol and used hands-and-knees position).

position: and competent to give informed consent. At two North American hospitals, one in Toronto, Canada and one in Fort Worth, Texas. **Johns Hopkins Evidence Appraisal:** **Strength:** Level I: Randomized Control Trial **Quality:** Low: Low Quality or Major Flaws: Insufficient sample size for the study design; conclusions cannot be drawn.	***Persistent back pain*** At trial entry and on an hourly basis, each participant was asked to rate her level of persistent back pain on a numeric rating scale, ranging from 0 ("no pain") to 10 ("worst pain imaginable"), and to indicate whether, compared to one hour ago, the persistent back pain was a lot better, a little better, about the same, a little worse, or much worse. ***Participants' views*** After delivery, each participant was asked to complete a self-administered questionnaire about her experiences: included items which compared their expectations to their experiences, and their willingness to participate in the trial if they had it to do over. Those in the hands-and-knees group were also asked to rate the perceived helpfulness of the position. ***Data analyses*** Because it was a small pilot trial and not powered to detect differences in outcomes, results were analyzed descriptively.	participants' hourly ratings of persistent back pain or its intensity relative to the previous hourly rating. Ratings were highly variable. Given the low compliance with the hands-and-knees position, it was not possible to explore relationships between use of the position and persistent back pain score. When asked to rate their overall satisfaction with their birth experiences, the hands-and-knees group's ratings tended to be lower than those in the usual care group, although 11 in the hands-and-knees group and 8 in the usual care group stated they would probably or definitely try the position in a subsequent labor. **Conclusion:** Results of the pilot study concluded that the time and expense associated	

		with a definitive trial were not justified. However, with modification, a future trial could be feasible.	

Author Recommendations:
A definitive trial of repeated hands-and-knees positioning may be feasible and desirable, with modifications to the eligibility criteria and careful selection of settings. For example,
The problem of poor compliance may be lessened in settings in which non-recumbent positions are common during labor.

Implications:
The benefit of hands and knees and other non-recumbent positions in labor are difficult to ascertain in the midst of high interventions such as epidural analgesia, intravenous infusions for oxytocin or other reasons, and routine continuous electronic fetal monitoring. While the position can be assumed by a woman without leaving her labor bed, by women who have had low dose regional analgesia, and by those who are connected to electronic fetal monitors and intravenous lines, it may be difficult to do so.
If there is benefit to hands and knees, it may be enhanced by reduced interventions.

Source:
Ali, S. A. S. K., & Ahmed, H. M. (2018). Effect of change in position and back massage on pain perception during first stage of labor. *Pain Management Nursing*, *19*(3), 288-294. https://doi: 10.1016/j.pmn.2018.01.006

Purpose/Sample	**Design (Method/Instruments)**	**Results**	**Strengths/Limitations**
Purpose: To identify the impact of either change in position or back massage on pain perception during first stage of labor. . **Sample/Setting:** Eighty women were interviewed as a study sample when admitted to the labor and delivery area **at a**	A quasi-experimental study, the participants were divided into three groups: 20 women received frequent changes in position (group A), 20 women received back massage (Group B), and 40 women constituted the control group (group C). Methods: A structured interview questionnaire to collect background data was completed by the researcher in personal interviews with	The mean rank of the difference in pain scores among the study groups was as follows after the first, second, and third interventions, respectively: group A—52.33, 47.00, 49.2; group B—32.8, 30.28, 30.38; group C—38.44, 42.36, 41.21. There were significant differences between groups A, B, and C after the first, second, and third interventions ($p_1 = .011$, $p_2 = .042$, $p_3 = .024$).	**Strengths:** A pilot study was conducted on 12 women before starting the main data collection to identify barriers that might be encountered by the investigator during the study process, such as place and time. The knowledge gained from the pilot study was helpful in developing the

teaching hospital, Kurdistan Region, Iraq, November 2014 to October 2015. Inclusion/Exclusion criteria: full-term and carrying a live single fetus in cephalic presentation, in the active phase of the first stage of labor (cervix dilation of at least 3-4 cm), and gravida 1 or 2. Mothers with high-risk pregnancies, postdate pregnancy and those who received analgesic drugs were excluded from the study. All groups had the following matching criteria: age <20-35 years, gravida 1 or 2. It is worth mentioning that pregnant women in both study groups and the control group had not received any antenatal teaching regarding pain management during labor, as this type of service is not included	the mothers. The intervention was performed at three points in each group, and pain perception was measured after each intervention using the Face Pain Scale.	The results of the present study revealed that the mean rank of the difference in pain scores for group A (changing position) was higher than that for group C (control), which means that changes in position increase pain. The effects of each position (sitting, walking, semi-sitting, hands and knees [all fours], and side lying) on pain perception were not measured separately so it is unclear if the increasing pain perception was related to a specific position. The increase in pain perception after frequent changes in position may result from changes in the shape and size of the pelvis **Conclusion:** Back massage may be a more effective pain management approach than change in position during the first stage of labor.	procedure for the intervention for the study groups in the infrastructure of the delivery room. **Limitations:** The specific positions held by women in Group A are not noted. Quasi-experimental design: The lack of random assignment into test groups leads to non-equivalent test groups which may limit general application of the results to a larger population. Small number of mothers, which limited the generalization of the findings. Inadequate environmental conditions, such as interruption by physician. Lack of patient knowledge. Extreme crowding conditions in the delivery area.

in antenatal care of the Iraqi primary health care system before or during labor. **Johns Hopkins Evidence Appraisal:** **Strength:** Level II - Quasi-experimental study **Quality:** Low quality or major flaws - Little evidence with inconsistent results; insufficient sample size for the study design; conclusions cannot be drawn	Interventions: Group A (Change in Position) The positions used for women in the first stage of labor were sitting, walking, semi-sitting, hands and knees (all fours), and lying on either side. The researcher prepared a pamphlet that described the five appropriate and suitable positions (including pictures) for the mother and the benefits of each position during the first stage of labor, which was translated into the local language. The women were asked to begin by choosing the position in which they were most comfortable. Women were encouraged to remain in each position for 10 minutes with a 10-minute rest between changes and assumed the five positions during the first stage of labor at 4, 7, and 10 cm of cervical dilation. Women completed the FPS to indicate how they felt before starting the intervention and at the three intervals during the intervention. Group B (Back Massage)		

	The researcher had prepared a pamphlet describing the advantages of back massage during labor, which was translated into the appropriate language. The participants, in a sitting position, were massaged by the researcher who had learned the technique by reading the literature and watching videos. Back massage was performed during the first stage of labor at 4, 7, and 10 cm of cervical dilation for 20 minutes during contractions. Massage was performed in a circular motion gently, with moderate pushing and rhythmic movements. Jasmine oil was used to make the massage easier to perform and to make it more enjoyable for the women. Women completed the FPS to indicate how they felt before starting the intervention and at the three intervals during the intervention. Group C (Control) The women in the control group received routine care from midwives in the		

	delivery room, which included cannulation, int ravenous therapy, and encouragement to urinate during first stage. The midwives were most involved prior to the second stage of labor and prior to delivery of the placenta. Most women in the control group did not receive analgesic medications; some received only pharmacological analgesia with tramadol or meperidine.		

Author Recommendations:
The results are a motivator for health system stakeholders to improve prenatal education and antenatal childbirth classes prior to general application in the maternal and child health care arena.

Also, the results encourage nurse researchers to examine other, different pain management approaches during labor and delivery.

Implications:
The use of effective nonpharmacological methods for pain management will increase mothers' satisfaction with the labor and delivery process.

Midwives, using back massage, can help to decrease pain perception by mothers, during labor. In the absence of epidural anesthesia, back massage, a simple and inexpensive procedure, can decrease the suffering from labor pain.

Source:
Nieuwenhuijze, M., Jonge, A. D., Korstjens, I., & Lagro-Jansse, T. (2012). Factors influencing the fulfillment of women's preferences for birthing positions during second stage of labor. *Journal of psychosomatic obstetrics & gynecology*, *33*(1), 25-31. https://doi:10.3109/0167482X.2011.642428

Purpose/Sample	**Design (Method/Instruments)**	**Results**	**Strengths/Limitations**

Purpose: To examine pregnant women's preferences and their birthing positions in midwifery practices: Which positions were preferred, and did women use their preferred positions even if these were other than supine positions? Which factors were related to using the preferred positions? **Sample/Setting:** 1154 women with a physiological pregnancy and birth, whereby a primary care midwife was the lead professional and responsible for the care throughout the birth in both home and hospital settings. Practices that volunteered were sufficiently spread throughout the Netherlands and covered urban, semi urban and rural areas. 75% of the women in our	Two separate questionnaires were used: one questionnaire filled out by the women and one by the midwives. The questionnaire completed by the women included questions about their preferences for birthing positions, the birthing positions used during the second stage of labor and at the moment of birth, and sociodemographic and labor factors known to be related to birthing positions. Birthing positions were defined as follows: supine (recumbent or semi recumbent positions), lateral, sitting (>45° from the horizontal), squatting, standing, birthing shell (a plastic plateau giving support to women in squatting position), birthing stool, hands and knees, and bath [9,10]. Each woman was asked to indicate her preference in pregnancy. For each birthing position, she could score whether she intended to (i) certainly use the given birthing position, (ii) possibly use the given position, or (iii) definitely not wish to use it. In another	The majority of women (87%) considered using supine positions and most women used the supine position at some time during the second stage (during pushing 88%, at birth 81%). Of the other positions, women most often considered using the birthing stool (39%), and this non-supine position was most often used (during pushing 17%; at birth 9%). Nearly all women knew at least one other position. Of the women who attended antenatal classes, 80% (n=440) reported that they were informed about birthing positions during these classes, whereas only 22% (n=246) of all women reported being sufficiently informed about birthing positions by their midwives. Of the 1154 women, 58.9% (n=679) had a supine preference either strong (n=287) or mild (n=392), and 19.6% (n=226) had a preference for other positions either strong (n=80) or mild	**Strengths:** All Dutch practices (n=487) were invited by letter to participate in the study. Practices that volunteered were sufficiently spread throughout the Netherlands and covered urban, semi urban and rural areas. Participation was strictly voluntary and the data were kept confidential. Noninvasive character of the study. Questionnaire available in Dutch and English Large sample size (1154). **Limitations:** Participating midwives in the study population were self-selected. Most likely, positive attitudes towards diversity in birthing positions played a part in midwives' willingness to participate. This might have led towards a more positive outcome for the use of other than supine birthing positions Women were also older compared to the

study were aged between 25 and 35 years, 35% were primiparous women, 93% were of Dutch origin, 20% had a low level of education, and 80% gave birth at home. This sample is similar to Dutch primary care population. These midwives do not use any medical interventions such as epidural anesthesia, augmentation, continuous fetal monitoring or instrumental birth. **Johns Hopkins Evidence Appraisal:** **Strength:** Level III: Non-experimental **Quality:** High quality: consistent, generalizable results; sufficient	question, the woman could mark the positions she had used during the second stage of labor and at the moment of birth on a written list of possible positions. Women were also asked whether they had received information about birthing positions during pregnancy from their midwife and during antenatal classes. The separate questionnaire for the midwives consisted of questions about sociodemographic characteristics, pregnancy and birth factors. This questionnaire was used for verification of data, replacing missing data, and for additional information on place of birth and referral to the obstetrician, data that was not available on the questionnaire the women filled out. Results are based primarily on the answers provided by the women.	(n=146). The remaining 21.5% (n=249) had no distinct preference. Women with a strong preference were more likely to use their preferred birthing position than women with a mild preference ($p<0.001$). These factors were significantly associated with using the preferred birthing position: having a preference for supine versus other positions (OR 10.5; CI 6.21–17.74), duration of second stage of more than 60min compared less than 10min (OR 3.21, CI 1.15–8.91), and birth at home instead of in the hospital (OR 2.33; CI 1.3–4.18). The model explained 21.2% of the variance in the use of preferred birthing positions In the logistic regression analysis among women with a preference for other birthing positions (Table V), the following factors were significantly associated with the use of other birthing positions among	Dutch primary midwifery care population, which may have influenced the likelihood of using their preferred positions. The questionnaire about women's preferences was filled out by women after they gave birth and this may have led to avoidance of post decision dissonance; women may have responded in line with the final outcome. Because of the small number of women of non-Dutch origin in the study, it is unclear to what extent the results apply to ethnic minority populations in the Netherlands. Literature on preferences and use of birthing positions is very limited

sample size for the study design; definitive conclusions; consistent recommendations based on comprehensive literature review that includes thorough reference to scientific evidence.		women who preferred these positions: duration of second stage more than 60min compared to less than 10min (OR 4.9; CI 1.29–18.57), an intermediate or higher level of education instead of a lower educational level (OR 3.85; 1.48–10.04; OR 3.36; 1.35–8.39, respectively), and a strong preference compared to a mild preference (OR 2.27; CI 1.09–4.74). A positive trend was found for birth at home instead of in the hospital (OR 2.36; CI 0.99–5.59). Because of the limited sample size (n=222), we included only the strongest predicting factors from the previous model. The model explained 14.7% of the variance. **Conclusion:** Most women in this study used their preferred birthing position at some time during the second stage of labor. Only 20% of the women had a preference for other than supine birthing positions. They were less likely to use their preferred	

		birthing position, especially when they had a mild preference. Other factors associated with actual use of preferred birthing positions were: duration of second stage longer than 60min; birth at home; and, for other birthing positions, higher levels of education. In our study, women with a lower level of education were less likely to use their preference for other birthing positions, suggesting inequalities in realizing one's choice. These women might have been less explicit in expressing their preference, or perhaps midwives might be less proactive in exploring the choices of these women.	

Author Recommendations:
A minority of women preferred other positions than supine. This might be because they were unaware of the available options for birthing positions. Although nearly all women knew at least one other position, midwives seemed to have a minor role in giving information about birthing positions. This might have limited women's perceptions of the available possibilities. A study on maternity services has suggested that preferences are affected by what women believe to be possible.

In another study, women indicated that the midwife's advice was by far the most important factor that influenced their choice of birthing position. They said they would feel less hesitant to use more uncommon positions if these had been mentioned by the midwife during pregnancy.

Informed choice is fundamental to the midwifery model of care. Both primiparous and multiparous women expressed a strong need to be informed during pregnancy by their midwife on how to prepare physically and mentally for the birth, including the use of birthing positions. The home environment itself may also be more conducive to allowing women to follow their own preferences. For midwives the environment is also a contributing factor. In several studies midwives stated that their work environment influenced their tendency to use other birthing positions. Midwives who experience more autonomy in their work setting, as in the home situation, are more likely to simulate a variety of positions.
Implications: Midwives should proactively explore women's preferences for birthing positions throughout pregnancy and birth, support women in developing well-informed choices, and facilitate these choices where possible.

Source:
Whitburn, L. Y., Jones, L. E., Davey, M. A., & Small, R. (2017). The meaning of labor pain: how the social environment and other contextual factors shape women's experiences. *BMC pregnancy and childbirth*, *17*(1), 157. https://doi.org/10.1186/s12884-017-1343-3

Purpose/Sample	**Design (Method/Instruments)**	**Results**	**Strengths/Limitations**
Purpose: To examine women's experiences within the perspective of modern pain science. A more complete understanding of this phenomenon can then guide the development of interventions to enhance women's experiences and potentially reduce their need for pharmacological intervention. . **Sample/Setting:**	A qualitative study was conducted using phenomenology as the theoretical framework. Data were collected through face-to-face interviews and written questionnaires. Data were analysed using an Interpretative Phenomenological Analysis approach. Women participated in two interviews, as well as completed three questionnaires during the study. The semi-structured pre- and post-birth interviews were conducted with	A determining factor of a woman's experience of pain during labor is the meaning she ascribes to it. When women interpret the pain as productive and purposeful, it is associated with positive cognitions and emotions, and they are more likely to feel they can cope. Alternatively, when women interpret the pain as threatening, it is associated with negative cognitions and emotions and they tend to feel they need help from external methods of	**Strengths:** Investigates important and under-researched concepts relating to labor pain. We have chosen a research strategy that enables us to seek a more complete understanding of the experiential phenomenon of labor pain and have interpreted the findings in light of modern pain science. Through this more sophisticated understanding of labor pain, better strategies to support women during labor and birth may be developed.

21 nulliparous women, birthing at one of two large maternity services in Melbourne, Australia. Nulliparous women in late pregnancy (>30 weeks gestation) who were not booked for a planned caesarean section and who were expecting a normal vaginal birth at the time of recruitment were invited to participate. **Johns Hopkins Evidence Appraisal:** **Strength:** Level III – Qualitative study **Quality:** High - Consistent, generalizable results; sufficient sample size for the study design; definitive conclusions; consistent recommendations based on comprehensive literature review that includes	researcher LW between December 2013 and January 2015. The pre-birth interview was designed to explore women's thoughts and expectations about labor pain, and how they anticipated they would cope. The post-birth interview [see Additional file 1] was designed to capture women's experiences of labor. Women were asked to reflect on the labor and describe their experience from the onset of the first stage of labor through to the birth of their baby. Interviews were conducted in women's homes within 3 weeks of giving birth and lasted between 45 and 90 min.	pain control. The social environment seems particularly important in shaping a woman's pain experience by influencing her interpretation of the context of the pain, and in doing so can change its meaning. The context and social environment are dynamic and can also change throughout labor. **Conclusion:** A determining factor in a woman's experience of pain during labor is its perceived meaning which can then influence how the woman responds to the pain. The meaning of the pain is shaped by the social environment and other contextual factors within which it is experienced.	**Limitations:** The demographic factors of participants are not representative of all women giving birth. Despite women being recruited from two different maternity hospitals in various models of care, as well as differing pregnancy risk levels, this study focused only on nulliparous women's experiences. Over half of these women had completed tertiary level education. The interview relied on recall up to 3 weeks after women's labors. Yet, previous work, however, has demonstrated that women's recall of their labor experiences is surprisingly accurate even years after the event.

thorough reference to scientific evidence.			

Author Recommendations:
The social environment is a key influencer; Interventions that encourage positive cognitions and emotions about labor pain, and promote labor pain as a productive and purposeful pain, may improve women's pain experience and, importantly, her capacity to cope.

Implications:
Focused promotion of labor pain as a productive and purposeful pain and efforts to empower women to utilise their inner capacity to cope, as well as careful attention to women's cognitions and the social environment around them may improve women's experiences of labor pain and decrease their need for pain interventions.

The data in this study suggest that the people around the laboring woman can shape her pain experience.

Source:
Aynaci G. (2020). Maternal Perspective for Support and Control in Birth. *Journal of Basic and Clinical Health Sciences*, 4:161-168. https://doi:10.30621/jbachs.2020.990

Purpose/Sample	**Design (Method/Instruments)**	**Results**	**Strengths/Limitations**
Purpose: To evaluate the perceptions of patients and the parameters affecting them during delivery and to increase the quality of obstetric care. **Sample/Setting:** 230 postpartum women between at least 24 hours postpartum period and 72 hours postpartum period who gave birth in Trakya Medical Faculty Hospital	Face to face interviews, Data from 2 scales were used; 'Support and Control in Birth Scale (SCIB)' and 'Discomfort Intolerance Scale (DIS)'.	SCIB scores increased with an increase in the education level. Patients with higher DIS scores were more intolerant of discomfort. However, they also had high SCIB scores. Patients who had high SCIB scores didn't lose control during labor. SCIB scores were found to be lower in patients who had additional interventions such as foley catheter, experiencing a painful vaginal examination.	**Strengths:** Thorough literature review **Limitations:** Poor grammar (likely due to translation). Weak positive correlation between SCI and DIS. However, the relationship was statistically significant. Although the result is statistically significant, further studies are recommended to assess whether it is clinically significant.

between September 2019-January 2020. The women aged between 18 and 43 years old with no psychological illness, smoking or alcohol history with low risk pregnancies. **Johns Hopkins Evidence Appraisal:** **Strength:** Level III: Qualitative Study **Quality:** Good: Reasonably consistent results; sufficient sample size for the study design; reasonably consistent recommendations based on fairly comprehensive literature review that includes some reference to scientific evidence.		The scores of those who had normal vaginal delivery were higher than those who had cesarean section. There was a significant relationship between DIS, SCIB and labor duration. SCIB scores of those with average income were higher than those with low income ($p < 0.001$). However, as income level increases, DIS scores were increasing as well, which indicates less intolerance to discomfort. When the participants are evaluated according to their occupations, there was no significant relationship between SCIB and DIS scores. Those who had high DIS scores indicating less intolerance to discomfort, it was observed that they were exposed to additional interventions such as fundal pressure and intravenous induction during labor. As the age increased, SCIB support, SCIB	

		internal control, SCIB total, and DIS scores were better. SCIB and DIS scores of those who had normal vaginal delivery were higher than those who had cesarean section (p= 0.007; p< 0.001). SCIB, SCIB subscores, and DIS scores were better in patients with three or more healthy pregnancies than those who had their first or second pregnancy (p = <0.001). SCIB scores of those who delivered three or more had a tendency to a lower score. The best scores were observed in women who delivered twice (p = 0.003). SCIB scores of those who had breastfed their babies for more than one year in their previous pregnancies were higher than those who had given breastmilk less than one year (p < 0.001). It was observed that patients who breastfed for a long time had higher	

		tolerance intolerance to discomfort. SCIB Support ($p<0.001$); SCIB Internal Control ($p < 0.001$) and SCIB Total scores were higher in women whose labor lasted less than 8 hours compared to the women with longer labor duration. There was a significant relationship between DIS and labor duration ($p= 0.003$). The women who experience a traumatic birth reported that they had low self control on their emotions during labor. **Conclusion:** The sensitivity and tolerance factors of pregnant women should be examined at structural level. During and after childbirth, suitable environments for the mother should be created and adaptation to the new situation should be ensured. The higher control detected during labor results with less severe pain, more intense positive emotions and less	

		intense negative emotions. With more supportive care services, perceived control increases in patients and they experience a more comfortable delivery process.	

Author Recommendations:
Pregnant women with increased knowledge and awareness about labor will achieve a higher quality pregnancy period and delivery process. Thus, the protection and development of maternal and fetal health should be supported.

Out of the three subscales of this scale, external control was found to be low. Participants had the lowest perception of external factors such as access to information and decision making during labor and delivery, indicating that they had the lowest perceived control. This showed that women had less share in obtaining information during labor and participating in decision making during childbirth. Women's participation in decision-making on their own bodies makes them feel honorable and respected both during hospitalization and during labor. Effective communication initiated by healthcare providers is a leading factor in gaining external control in women.

Among the factors with the lowest perception of internal control items were; "pretending that I am not myself in pain responses", ''The pain I had was much more than I could control''. Those items indicate low control level during birth; and supports the studies reporting that labor pain is a high adverse effect factor for labor. However, it should be kept in mind that severe pain at birth allows the woman to support uterine contractions. Therefore, intrapartum pain management with nonpharmacological interventions in Turkey, should be provided to pregnant women.

Implications:
The main determinant of not losing control at birth was the level of satisfaction experienced during childbirth. The sensation of control during pregnancy is significantly associated with the satisfaction of women at birth.

Pregnant women with increased knowledge and awareness about labor will achieve a higher quality pregnancy period and delivery process. Thus, the protection and development of maternal and fetal health should be supported.

Higher control detected during labor results with less severe pain, more intense positive emotions and less intense negative emotions. With more supportive care services in the delivery process; perceived control increases in patients and they experience a more comfortable delivery process.

Source: Campbell, V., & Nolan, M. (2019). 'It definitely made a difference': a grounded theory study of yoga for pregnancy and women's self-efficacy for labour. *Midwifery*, *68*, 74-83.https://doi.org/10.1016/j.midw.2018.10.005			
Purpose/Sample	**Design (Method/Instruments)**	**Results**	**Strengths/Limitations**
Purpose: To explore women's experience of attending yoga for pregnancy classes in order to generate a theory about which aspects, if any, are effective in enhancing self-efficacy for labour and birth. **Sample/Setting:** Twenty two women attending yoga for pregnancy classes in Three yoga for pregnancy teachers' classes in England between August 2014 and January 2015. **Johns Hopkins Evidence Appraisal:** **Strength:** Level III: Qualitative Study **Quality:** Good: Reasonably	A longitudinal grounded theory study. Semi-structured telephone interviews were undertaken with women before they started yoga for pregnancy classes, after they had attended at least six classes, and finally, postnatally. Interview transcripts were analysed using constructive grounded theory and a self-efficacy framework. To ensure the women had enough experience of YfP for it to have the potential to effect change, a minimum attendance at six classes was required for continued inclusion in the study at the second interview point. All yoga teachers were trained by NCT (formerly known as the National Childbirth Trust). First interview topics included why the women were choosing to attend YfP, their approach to labour and feelings about the birth. Second interview topics included the women's thoughts about the YfP classes,	Yoga for pregnancy enhances women's self-efficacy for labour by building their confidence and competence through a combination of techniques. These include repeated practice of a variety of pain management strategies, use of affirming language and the telling of positive labour stories, underpinned by yoga practice to lower somatic response to stress. *First interviews: Looking after myself and the baby* Four sub themes emerged from the first interviews: 1. Hoping for a natural or easier labour: "To try and have some techniques or positions that… might calm me…	**Strengths:** The first study where the development of women's thoughts around their hopes for birth, ability to manage labour and which aspects of YfP they find most effective, have been explored over time, and analysed in relation to self-efficacy theory. The richness of the data which was generated from interviews with women at different stages of their transition to parenthood. Consistency of the intervention as the YfP classes shared a common ethos, structure and curriculum. **Limitations:** Participants were restricted to women who attended multiple sessions of self-funded YfP classes. The results are not necessarily transferable to YfP

consistent results; fairly definitive conclusions; reasonably consistent recommendations based on fairly comprehensive literature review that includes some reference to scientific evidence	how they were feeling about labour, how they thought they might manage contractions and their confidence in https://doi so. Third interview topics included the women telling their birth story, how they managed contractions, and what, if anything, made a difference to their ability to manage their labour. The interviews at each of the three time points were treated as separate datasets to allow for thematic variability to be identified. Data generation and analysis proceeded concurrently.	To take your mind off the pain… keep your mind focused on that, rather than on the fact that it really hurts." Many women articulated a strong desire to avoid medical intervention. 2. Preparing for something I can't prepare for: The women's sense of lack of control had been fuelled by stories they had heard. They said that few women got the birth they wanted, so it was sensible to protect themselves by not raising their hopes too high. In some cases, the stories they had heard had convinced them that birth could not be other than awful. *Everyone tells you horror stories.* Even the second-time mothers lacked confidence that they could have the birth they hoped for, either because they had not had a good experience the first time around, or	classes which are facilitated by non-NCT YfP teachers.

		because they did not trust a second birth to go as well as the first. 3.Being calm and in control: They wanted an easy, and for most, as natural a labour as possible and were trying to plan for that by attending yoga. But at the same time, they said that it was impossible to prepare for natural labour and also that it was unlikely to happen. Whilst accepting a lack of control over some events of their labour and that the safety of their baby must always be the priority, they wanted to be in control of their mental and emotional state, however the birth progressed. 4.Making friends. Second interviews: ***Gaining confidence in managing labour.*** Four sub themes emerged from the second interviews.	

		1. Practising techniques for labour: ***All the women said that learning different breathing techniques in combination with repeated practice of labour positions and relaxation had led them to feel more confident and prepared for birth.*** ***The women described a variety of coping strategies they had practised, differentiating them and showing an awareness of which ones might work for them.*** ***2. Learning from each other*** ***The women's confidence had increased after 'show and tell' visits by previous class members who had returned with their babies.*** *3.* ***Being in control*** "Yoga maybe puts you more in tune with your body… I feel quite empowered in a way that birth isn't something that is going to happen to	

		me: I can kind of be active in it." (Terri) *4.* ***Preparing for something I can't prepare for*** Although the women felt more confident, none felt *fully* confident or in control. The women described their fear of losing control once they arrived in hospital or if medical intervention was necessary.	

		Postnatal interviews: Having a positive labour experience Postnatally, the women spoke about how they had used the skills they had learned in YfP. Their descriptions of remaining calm, confident and in control during their labours were consistent and powerful, as were their stories of managing their labours without medical intervention. The women attributed their positive labour experiences to what they had learned in YfP. All twelve women realised their hope of giving birth vaginally. Eleven of the twelve women used only natural pain relief methods or combined these with Entonox. One woman accepted a syntocinon drip to speed up her labour. Another had an epidural once she was in second stage of	

		labour and her baby's birth was assisted with forceps. The three sub themes which emerged postnatally were closely related to those which had emerged at the second interview stage:	

		1. Using techniques to manage labour: All the women spoke compellingly of the benefits they gained from using breathing techniques, labour positions and movements they had practised in YfP. *The women emphasised how repeated practice of pain management strategies in YfP classes had made the techniques feel comfortable and familiar. They said that because they had been taught a variety of coping strategies, they were able to find the right ones for them.* *2. Being calm, confident and in control:* *The midwife kept saying to me, "Oh you're being so instinctive, everything you are https://doi is so instinctive" and I didn't correct her, but I just thought: if I hadn't been*	

		taught any of this, I wouldn't have been able to do it… It kept me calmer for longer, definitely. (Kirsten) The confidence resulting from practice in pregnancy had enhanced the women's feelings of trust in their body. *3.* ***Being positive and telling stories*** Benefits of hearing positive stories in the YfP classes. The women remembered specific positive affirmations the teachers had used in YfP classes that had helped them in labour. They appreciated how the teachers had encouraged them to believe in their ability to have control over their birth experience. **Conclusion:** All the women said YfP enhanced their ability to manage their labour. Within a self-efficacy framework, the YfP elements which the	

		women said helped them most were skills practice, positive stories, affirmations and learning to relax. The evidence from this study is that YfP enhances women's self-efficacy for labour through a combination of efficacy-enhancing strategies. Increased confidence and competence enable women to remain calmer, to mobilise pain management skills and take greater control of their labour. The congruence between what the women said helped them and self-efficacy theory suggests that the elements in YfP classes which are most effective for enhancing women's ability to manage labour are: •The inclusion of all four efficacy-enhancing strategies •Multiple opportunities for practice	

		•Being taught a variety of pain management strategies covering different coping styles.	

Author Recommendations:
In order to increase positive, straightforward birth, antenatal education programmes need to incorporate multi-focused interventions which recognise the complex interplay between these efficacy enhancing methods.

Implications:
All the women said the main factors enabling them to manage their labour were learning pain coping skills and the confidence they gained from repeatedly practising them.

All the women in the present study spoke of how the breathing and positions they had learned in YfP helped in labour. Belief in one's own ability to control labour pain predicts both the intention to use and the actual use of coping strategies. Yet women's outcome expectancies have consistently been shown to be greater than self-efficacy expectancies: women believe more in the efficacy of coping strategies than in their ability to use them successfully. It has been suggested that this might be due to insufficient practice of pain management strategies in the antenatal period. It is possible that their increased confidence in their ability to use strategies effectively was due to regular practice which, in turn, resulted in their trying more coping strategies and persisting with them for longer, thus leading to increased success in pain management.

It may also be surmised that the variety of coping strategies taught in YfP helped the women to become more aware of their personal coping style, resulting in their using the strategies which suited them best. This resonates with studies indicating that women might benefit from antenatal education which helps them to choose from and incorporate a wide range of coping strategies covering all the different coping styles.

Stories showing the courage and power of women, and infused with a belief in normal birth, inspire confidence, whilst negative stories promote catastrophizing and reduce use of pain coping strategies.

Verbal persuasion is most likely to succeed when, as in YfP, it is used in conjunction with other methods of increasing self-efficacy: it is easier to convince a mother that she can succeed if she is confident in her coping skills and has seen her peer group succeed before her.

Yoga, with its focus on breathing, meditation and relaxation is ideally placed to help women achieve the somatic awareness which Bandura (1977) hypothesised was the fourth source of self-efficacy.

Women who believe themselves able to cope with labour have a reduced stress response and the use of pain coping strategies itself reduces stress responses and increases feelings of control.

Source: Colley, S., Kao, C. H., Gau, M., & Cheng, S. F. (2018). Women's perception of support and control during childbirth in The Gambia, a quantitative study on dignified facility-based intrapartum care. *BMC pregnancy and childbirth*, *18*(1), 413. https://doi.org/10.1186/s12884-018-2025-5			
Purpose/Sample	**Design (Method/Instruments)**	**Results**	**Strengths/Limitations**
Purpose: To explore women's perception of support and control during childbirth in The Gambia and to identify related factors influencing perceptions of support and control during childbirth. **Sample/Setting:** 200 participants were recruited between August 2016 and September 2016, at three major health centers in Western and Lower River Regions in The Gambia. Women between the ages of 18 and 35 years, with no medical or obstetric complication during pregnancy, were eligible to participate. They	Descriptive cross-sectional study, convenience sampling was used to select the study areas and recruit participants. A demographic-obstetric questionnaire and the Support and Control in Birth (SCIB) scale were used to obtain participants' information. As a result of the low literacy rate among women in The Gambia, the questionnaires were administered to the eligible participants that were in the ward at the time of data collection and are willing to participate using the face-to-face interview. The variables that were included in the questionnaire were age, education, place of delivery, marital status, parity, number of antenatal attendance and birth plan.	Women's perceptions of support and control were low. External control 1.85 (SD ± 0.43) recorded the least perception compared to internal control 2.41 (SD ± 0.65) and perception of support 2.52 (SD ± 0.61). Participants reported the lowest perceptions in pain control, involvement in decision making, information sharing and the utilization of different positions during birth. *Perception of internal control:* The mean score for internal control was 2.41 (SD ± 0.65), indicating a low perception. The three lowest mean scores in this subscale included; "I was able to control my reactions to the pain" 2.03 (± 1.00); "I was mentally calm" 2.07 (SD ± 1.17); and "the	**Strengths:** Sufficient sample size. Thorough literature review. **Limitations:** A convenience sampling was the method employed in selecting participants in this study. This sampling method is liable to selection bias. The three health facilities identified for the study may differ in the implementation of intrapartum care protocols, and this may have an impact on the results of this study.

were also eligible if admitted for at least 3 h in a public major health facility in Western and Lower River Regions prior to delivery. Women with multiple pregnancies and those who delivered before arrival at the health facility were excluded. **Johns Hopkins Evidence Appraisal:** **Strength:** Level III: Qualitative Study **Quality:** Good: Reasonably consistent results; sufficient sample size for the study design, fairly definitive conclusions; reasonably consistent recommendations based on fairly comprehensive literature review that includes some reference to scientific evidence		pain was too great for me to gain control over it" 2.09 (SD ±1.08). Items with the highest scores were "I was overcome by the pain" 3.76 (SD ± 0.97); and "I gained control by working with my body" 3.29 (SD ± 1.19). Higher levels in perception of internal control was significantly associated with participants aged 25 years and older (*rho* = .20; *p* = .004), and vaginal delivery (median = 2.20, *U* = 374.0, *p* = .004). *Perception of external control:* External control, 1.85 (SD ± 0.43) equally revealed a low perception. Of the 11 items, the three lowest scores were observed in, "I could decide when I received information" 1.48 (SD ± 0.56); "I could influence which procedures were carried" 1.54 (SD ± 0.61); and "I had control over what information I was given" 1.56 (SD ± 0.63). The only item with a high mean	

		score was observed in "I could get up and move around as much as I wanted" 3.59 (SD ± 1.32). Higher levels in perception of external control was significantly associated with participants aged 25 years and older (*rho* = .17; *p* = .02), vaginal delivery (median = 1.91, *U* = 419.0, *p* = <.001), and higher parity (median = 1.91, *U* = 2661.0, *p* = .001); and a low level in perception of external control significantly associated with women who delivered in Western Region (median = 1.73, *U* = 2721.0, *p* = .001), and those who had primary or higher education (median = 1.73, *U* = 3647.0, *p* = .001). *Perception of Support:* The overall mean score for support was 2.52 (SD ± 0.62), revealing a moderately low perception and the items such as "the staff helped me to try different positions" 1.45 (SD ± 0.89); "I	

		was given time to ask questions" 2.01 (SD ± 1.24); and "the staff stopped doing something if I asked them to stop" 2.18 (SD ± 1.03), showed the lowest mean scores. Items with high scores were "the staff realized the pain I was in" 3.45 (SD ± 1.17); the staff encouraged me not to fight what my body was doing" 3.20 (SD ± 1.15); and "the staff helped me find energy to continue when I wanted to give up" 2.98 (SD ± 1.29). There was a statistically significant higher level in perception of support among married women (median = 2.58, $U = 310$, $p = .05$), women who had a vaginal delivery (median = 2.58, $U = 326.50$, $p = .002$), participants aged 25 years and older ($rho = .18$, $p = .01$), higher parity (median = 2.58, $U = 2960.50$, $p = .01$) and those who had a birth plan (median = 2.67, $U = 3649.0$, $p = .001$). 2.58). **Conclusion:**	

		Among the three subscales, external control 1.85 (SD ± 0.43) recorded the least perception, which implies that women had the lowest perceived control over external factors such as accessing information and decision making during childbirth. An environment that promotes women feeling a sense of control and support during childbirth should be created in order to ensure dignified intrapartum care in The Gambia.	

Author Recommendations:

A sense of control and support during childbirth can be achieved through effective training of skilled birth attendants on non-pharmacological pain management, effective communication with clients and promoting women's participation in decision-making regarding their care throughout the process of childbirth.

Factors with the lowest perception of internal control included "the inability to control reactions to pain", "being mentally calm during labor" and "the pain being too great to gain control". Therefore, non-pharmacological pain management such as massage, which is the only intrapartum pain management intervention available in The Gambia, should be provided to women.

External factors such as "deciding when they receive information", "inability to influence which procedures were carried out" and "inability to gain control over what information was given to them" had the lowest scores. This implies that women had less autonomy as regards to information sharing and involvement in decision-making during childbirth, and this is a form of mistreatment and loss of dignity. Women's involvement in decision making, makes them feel dignified and respected during labor. Effective communication which is both woman-initiated and provider-initiated is a main element of gaining external control.

One of the factors with the lowest perception of support included "women not helped to try different positions during birth". Empowering and encouraging women to change positions

during the first and second stage of labor is an integral part of quality intrapartum care. Maternal positioning as preferred by women during birth acts as a coping mechanism for pain and promotes comfort, and utilizing positions such as the upright position during the second stage of labor, minimizes obstetric complications and interventions, shortens the duration of labor and reduces the feeling of pain. In The Gambia, the supine/lithotomy position is the most widely used position during the second stage of labor in the health facilities across the country. Lack of knowledge and competence in conducting deliveries using positions other than the supine position could be one of the reasons for women not helped to try different positions in this study. Positioning during delivery is not captured in The Gambia Maternity Care.

Guideline and Service Delivery Standards, therefore, it should be incorporated, and training on the use of different positions during delivery should be provided to skilled birth attendants (midwives), to improve competence. The skills should also be incorporated in all the midwifery curricula in The Gambia.

Women not given the time to ask questions was also one of the factors with the lowest perception of support. This implies that the interaction between skilled birth attendants and women was poor. Effective client-centered communication by healthcare providers during childbirth is regarded as an enhancer for respectful and dignified childbirth. The Reproductive and Child Health Unit and the midwifery institutions in The Gambia should put more emphasis on improving the interpersonal skills of skilled birth attendants to enhance effective maternity care.

Women's inability to stop skilled birth attendants in doing something to them they don't like is a form of non-consent care, which is a violation of women's right and an intentional act of disrespect and abuse during childbirth. Therefore, women should be empowered to make their own decisions about the care provided, which must be respected as it is crucial in promoting control during childbirth.

Women who had a birth plan and those who had a vaginal delivery were more likely to have higher levels in the perception of support. Effective implementation of the birth preparedness and complication readiness strategies should be strengthened in antenatal care services across the country, as the birth plan has been identified as a factor that enhances the feeling of support during childbirth.

Implications:

A sense of control and support during childbirth can be achieved through effective training of skilled birth attendants on non-pharmacological pain management, effective communication with clients and promoting women's participation in decision-making regarding their care throughout the process of childbirth.

The findings contribute to the global body of knowledge related to dignified maternity care.

Source: Diorgu, F. C., Steen, M. P., Keeling, J. J., & Mason-Whitehead, E. (2016). Mothers and midwives perceptions of birthing position and perineal trauma: An exploratory study. Women and Birth, 29(6), 518-523. https://doi: 10.1016/j.wombi.2016.05.002			
Purpose/Sample	**Design (Method/Instruments)**	**Results**	**Strengths/Limitations**
Purpose: To identify prevalence rates of different birthing positions and episiotomy and to explore the differences in perspectives of mothers and midwives about birthing positions and perineal trauma. **Sample/Setting:** 110 mothers and 110 midwives at two hospitals in Port Harcourt, Nigeria. Maternal inclusion criteria: >18 years, no medical disorder, spontaneous vaginal delivery, live birth, sustained perineal injury during childbirth either spontaneously or surgically or both. Midwifery inclusion criteria: registered nurse-midwife, full time employment, >5 years labor ward experience.	A survey of mothers who had a vaginal birth/perineal injury and midwives who attended births that resulted in perineal injuries. Perceptions of mothers and midwives were analysed. Pearson's chi-square test was used to measure association between birthing positions and perineal trauma.	Mothers, n=94 (85%) and midwives, n=108 (98%) reported high rates of lithotomy position for birth. N=63 (57%) of mothers perceived lithotomy position as not being helpful for birth. In contrast, a similar number of midwives perceived lithotomy position as helpful, n=65 (59%). However, a high majority of mothers, n=106 (96%) and midwives, n=97 (88%) reported they would be willing to use alternative positions. Majority of mothers had an episiotomy, n=80 (73%) and n=76 (69%) reported they did not give their consent.	**Strengths:** A 100% response rate was achieved with the questionnaire. **Limitations:** Association between birth position and episiotomy not established.

Johns Hopkins Evidence Appraisal: **Strength:** Level III: Qualitative study **Quality:** Good: Reasonably consistent results; sufficient sample size for the study design; fairly definitive conclusions; reasonably consistent recommendations based on fairly comprehensive literature review that includes some reference to scientific evidence		N=59 (53%) reported they were not given local anaesthesia for an episiotomy. n=30 (27%) of midwives confirmed they performed an episiotomy without local anaesthesia. The results show that lithotomy position was chosen by midwives and not mothers during birth, the mean score ($\bar{X}$=1.85) was higher than the criterion mean ($\bar{X}$=1.5). Most midwives had never used positions such as squatting, standing, kneeling, sitting, even though the majority of midwives agreed that they were aware of other birthing positions which is indicated with a mean score of ($\bar{X}$=1.73) which was higher than the criterion mean ($\bar{X}$=1.5). **Conclusion:**	

		Care is not based on current evidence and embedded practices, i.e. birthing in lithotomy position and routine episiotomies are commonly used. However, this survey did find a willingness to change, adapt practice and consider different birthing positions and this may lead to fewer episiotomies being performed.	

Author Recommendations:
Entrenched clinical practices prevail and these need to be challenged. This survey did find that there is a willingness to change, adapt practice and consider adopting different birth positions, which may then lead to fewer episiotomies being performed.

Implications:
The majority of midwives would like to use upright birthing positions if introduced in the hospital maternity model of care.

This current practice suggests that the dominant lithotomy birth position, which is not based on contemporary evidence and more in line with a medical culture that exists in the two study sites is health practitioner focused rather than woman focused. The mothers in this study seemed to be passive participants in their own labor and birth.

Source:
Karlström, A., Nystedt, A., & Hildingsson, I. (2015). The meaning of a very positive birth experience: focus groups discussions with women. *BMC pregnancy and childbirth*, *15*(1), 251. https://doi.org/10.1186/s12884-015-0683-0

Purpose/Sample	**Design (Method/Instruments)**	**Results**	**Strengths/Limitations**

Purpose: To describe women's experience of a very positive birth experience. **Sample/Setting:** Twenty-six women in northern Sweden. Interviews were performed between September 2013 and February 2014. **Johns Hopkins Evidence Appraisal:** **Strength:** Level III: Qualitative **Quality:** Good: Reasonably consistent results; sufficient sample size for the study design; fairly definitive conclusions; reasonably consistent recommendations based on fairly comprehensive literature review that includes some reference to scientific evidence	Qualitative descriptive design. Twenty-six women participated in focus group discussions 6–7 years after a birth they had assessed as very positive. At the time of the birth, they had all taken part in a large prospective longitudinal cohort study. In the present study, thematic analysis was used to review the transcribed data.	Two themes and six sub-themes were identified that described the meaning of a very positive birth experience. Women related their experience to internal (e.g., their own ability and strength) and external (e.g., a trustful and respectful relationship with the midwife) factors. A woman's sense of trust and support from the father of the child was also important. The feeling of safety promoted by a supportive environment was essential for gaining control during birth and for focusing on techniques that enabled the women to manage labour. **Conclusion:** It is an essential part of midwifery care to build relationships with women where mutual trust in one another's competence is paramount. The midwife is the active guide through pregnancy and birth and should express a strong belief in a woman's ability to give birth. Midwives are required to	**Strengths:** Longitudinal design, where women first assessed their birth as very positive and then participated in focus group discussion six to seven years later, entering more deeply into the experience. **Limitations:** Findings are limited to the data collected during seven focus groups in a Swedish setting. The participating women are a relatively homogenous group, which might have influenced the discussions. The timing of recruitment, 6–7 years after the index birth assessed as a very positive birth experience, is also of importance. Women who responded to the invitation had an interest in birthing experiences and a willingness to share them with others, despite the years that had passed, which might differentiate them from other women. It is difficult to generalize the findings, but we suggest that the result

		inform, encourage and to provide the tools to enable birth, making it important for midwives to invite the partner to be part of a team, in which everyone works together for the benefit of the woman and child.	of the study may be transferable to other birthing women in a similar context.

Author Recommendations:
It is crucial that a beneficial and supportive environment can be established within the walls of a medicalized maternity care.

Implications:
It is difficult to separate the birth experience from the care given. Focusing solely on the experience will overlook the birthing environment and overlook the synergistic effect of a caring and reassuring midwife working together with the woman and her partner. It is possible to enhance a positive birth experience by developing maternity care customized to deliver what women want.

Source:
Musie, M. R., Peu, M. D., & Bhana-Pema, V. (2019). Factors hindering midwives' utilisation of alternative birth positions during labor in a selected public hospital. *African journal of primary health care & family medicine*, *11*(1), 1-8. https://doi:10.4102/phcfm.v11i1.2071

Purpose/Sample	**Design (Method/Instruments)**	**Results**	**Strengths/Limitations**
Purpose: To explore and describe factors hindering midwives' utilization of alternative birth positions during labor in a selected public hospital. **Sample/Setting:** A public hospital in the Tshwane district, Pretoria, South Africa. This hospital is a level-one district hospital that	This study used the qualitative, exploratory and descriptive research design. This design gathered quality information on factors hindering midwives' utilization of alternative birth positions during labor in a selected public hospital. Data saturation occurred after conducting 20 interviews with the midwives who were willing to partake in	*Theme 1: Midwives' perceptions of alternative birth positions:* The midwives in this study preferred the lithotomy position as compared to alternative birth positions. The reason given for their preference of the supine/lithotomy when assisting a delivery was that the position provides a good view of the perineum, ease of labor monitoring and	**Strengths:** Thorough review of literature. Compares utilization of national guidelines to practice in South Africa **Limitations:** Small sample size and limited generalizability.

provides 24-hours low risk and emergency services to urban and rural areas surrounding the hospital. The hospital also serves as a referral hospital for other level hospitals and the clinics nearby. The bed occupancy in the labor ward is 20. The target population was the midwives who conduct normal vaginal births in the hospital. The ward birth statistics were approximately more than 300 birthing women per month. The study population included professional nurses with midwifery training who completed either the four-year degree or 3-year diploma course and advanced midwives with a specialty in midwifery registered by the South African	the study based on the inclusion criteria. The interview had one central question and probing follow-up questions. The central question asked was: What are the factors hindering midwives' utilization of alternative birth positions during labor in a selected public hospital? Interviews were digitally recorded, and the researcher took field notes.	minimizing the midwives' physical strain during the birth. These views depicted the lithotomy position as appropriate and comfortable for the midwives. Most of the midwives were aware of the disadvantages of the lithotomy birth position but still prefer utilizing the position because they find it comfortable and familiar to themselves. ``We utilize the lithotomy position because it favors the midwife most of the time, it is easier for me and has no benefit to the birthing woman. My view on alternative birth positions, it can be done only if the midwife is comfortable with it …' (Participant 8, female, 46 years, Advanced midwife & 14 year's midwifery experience) 'I place the woman in lithotomy position because it is what I found being done in the unit. I think it is a culture of this unit and I know I was taught on other birth positions during	

Nursing Council. This equated to 30 midwives working in the labor ward. Inclusion criteria included qualified midwives currently working in the labor ward and responsible for conducting normal vertex deliveries with a minimum experience of 1 year working in the labor ward. **Johns Hopkins Evidence Appraisal:** **Strength:** Level III: Qualitative Study **Quality:** Good: Reasonably consistent results; fairly definitive conclusions; reasonably consistent recommendations based on fairly comprehensive literature review that includes some reference to scientific evidence.		studies, but I have never practiced it (Participant 9, female, 24 years, Professional nurse & 3 year's midwifery experience) *Theme 2: Barriers to utilization of alternative birth positions:* lack of necessary skills and training, lack of facilities and equipment, and communication difficulties between midwives and women. Most midwives were concerned that they do not possess the necessary skills and training to conduct alternative birth positions and are not confident enough with the skill. The midwives argued that the alternative birth position was taught in theory during undergraduate training. However, they were unable to grasp the skill and competence on how to practically position the women in alternative birth positions. 'The facilities are not available and the	

		planning of the unit does not anywhere involve the midwives. The hospital needs to buy convenient birthing chairs, but there is no space in the unit as it's already built this way [and] doesn't accommodate birth stools …' (Participant 7, female, 55 years, Advanced Midwife & 8 year's midwifery experience) 'We get a lot of women coming from Africa who do not understand English to deliver in our unit. You can't instruct someone who doesn't understand you. So with lithotomy position it's safe because, once they look up, maybe you, the midwife, can look at the woman during birth and use sign language to instruct her. With other birth positions like squatting they might be looking down and not hearing what you are saying. So it becomes difficult delivering the woman because of [the] language barrier …' (Participant 11, female, 31 years, Professional nurse &	

		6 year's midwifery experience) **Conclusion:** The lack of skills and training during the midwifery undergraduate and postgraduate program contributes to the midwives being incompetent to utilise alternative birth positions during clinical practice. It was found in this study that midwives, hospital managers and policy-makers diminished women's choices, due to having a common view that women in labor are unable to make the right decisions and need to be told what to do. Irrespective of the knowledge midwives have on the negative maternal and neonatal outcomes associated with the lithotomy position, they continued utilising this position for their own convenience and overlooked other birthing positions and the women's preferences.	

Author Recommendations: First, midwives need to provide education to birthing women on different alternative birth positions available to them. Secondly, the midwives need to assess, screen and plan the care to be rendered. Lastly, the midwives need to promote normal processes of labor to prevent complications. Nursing education institutions should revise the midwifery program. The program curriculum should capacitate midwives to teach midwives on the available alternative birth positions and incorporate theory into practice on provision of alternative birth positions.
Implications: One of the roles of the midwives is to provide women-centered care that enables women to adopt birth positions they are comfortable with, and that are likely to contribute to their self-esteem and their well-being.13 However, regardless of the benefits of alternative birth positions, women are not aware of a variety of alternative birth positions available to them. Even advanced midwives are not competent in the utilisation of alternative birth positions after acquiring a postgraduate advanced qualification. One of the strategies to enhance mutual participation concerns autonomy; mothers displayed limited information, understanding and awareness of what should be attained during childbirth. This contributed to their inability to make informed choices during childbirth. When limited opportunities were created, mothers become powerless, as evidenced by limited participation, responsibility-sharing, decision-making ability and dependency. When there is an exchange of information and knowledge between the mother and a midwife about childbirth issues and available childbirth options, mothers will become empowered.

Source:
Nieuwenhuijze, M. J., Low, L. K., Korstjens, I., & Lagro-Janssen, T. (2014). The role of maternity care providers in promoting shared decision making regarding birthing positions during the second stage of labor. *Journal of midwifery & women's health*, *59*(3), 277-285. https://doi.org/10.1111%2Fjmwh.12187

Purpose/Sample	Design (Method/Instruments)	Results	Strengths/Limitations
Purpose: To explore how maternity care providers communicate with women during second stage labor regarding birthing positions. **Sample/Setting:** 41 women, all nulliparous with	Exploratory, qualitative investigation conducted using audio-recordings of women during second stage labor that were part of a larger randomized clinical trial, the Promoting Effective Recovery from Labor (PERL) project. As an additional component of the parent project, a	In a total of 33 tapes, birthing positions were mentioned at least once during second stage labor. The median for mentioning birthing positions was 9 times, ranging from 1 to 28 times. Change of birthing positions was mentioned more often when second stage	**Strengths:** The use of audio-tapes provides a unique opportunity to directly explore the day-to-day practices regarding choice and use of birthing positions in second stage labor. A strength of the study was the use of a literature informed

uncomplicated term pregnancies at a teaching hospital in a Midwest university town **Johns Hopkins Evidence Appraisal:** **Strength:** III, Qualitative Study **Quality:** B-Good, limited in generalizability	subset of the participants agreed to allow audio-recording of the conversations occurring during second stage labor. The audio-recording was made using a regular cassette; it was started by the nurse once the woman entered second stage labor and continued through the birth of the newborn. A literature informed framework was developed to conduct a process of deductive content analysis of communication patterns between nulliparous women and their maternity care providers during the second stage.	lasted longer, and when midwives were the responsible care providers. Midwives were also noted to offer a greater variety of birthing positions. **Conclusion:** The role of care providers was significant in enabling women to consider choices regarding the use of various birthing positions and thus share in decision making.	framework developed for the analysis. The results of this investigation are generalizable to women who are giving birth in hospital settings where midwives, physicians, and nurses are part of the care team **Limitations:** Not generalizable to women with doulas. Video-recording may be perceived as more invasive to laboring women. In the 27 trials included in the meta-analyses on birthing positions, all were dated before 2005, except for 3 trials. Care providers were aware of the recording, and that could have influenced their practice.
Author Recommendations: Enabling shared decision making during birth is not a linear process using a single approach; it is a dynamic process that requires a variety of approaches. Care providers can support a woman to use different birthing positions during second stage labor by employing a flexible style that incorporates clinical assessment and the woman's responses. Literature framework can be used in future investigations of provider communication during the multidimensional process of labor and birth to evaluate the process of shared decision making.			

Implications:
Are providers aware of the importance of shared decision making in regards to birthing positions and do they have the skills and knowledge to promote and support women in a variety of positions? If not, how do we provide training for shared decision making as well as the skills and knowledge to support women in preferred positions?

Source:
Pilewska-Kozak, A. B., Klaudia, P., Celina, Ł. K., Beata, D., Grażyna, S., & Magdalena, B. (2017). Non-pharmacological methods of pain relief in labor in the opinion of puerperae–a preliminary report. *Ann Women's Health. 2017; 1 (1)*, *1005*. https://pdfs.semanticscholar.org/6ec6/bd473102ceb550f4a6533a17d6f4202e56d9.pdf

Purpose/Sample	**Design (Method/Instruments)**	**Results**	**Strengths/Limitations**
Purpose: To investigate what was the opinion of puerperae about the use of non-pharmacological methods of labor pain relief. **Sample/Setting:** 112 puerperae participated between the period of January 29, 2016 to April 16, 2016 in the Department of Obstetrics of the Independent Public Clinical Hospital No. 4 in Lublin and the Department of Obstetrics of the Independent Public Provincial Hospital of Jan Boży in Lublin, Poland.	Retrospective research, based on memories of the postpartum women. The respondents were asked about their perception of labor. The Numerical Pain Rating Scale and the original questionnaire concerning socio-demographic data were used.	The majority of women were interested in nonpharmacological methods of reducing labor pain before the delivery. More than half of them used these methods during childbirth. The intensity of labor pain before the use of non-pharmacological methods was assessed on a 10-point scale in the range of 4° to 10° (average 8.8 ± 1.3) and after the application in the range of 1° to 10° (average 6.5 ± 1.9). Most (77; 68.7%) women were interested in non-pharmacological methods of lessening labor pain before delivery. Only 35 (31.3%) were uninterested in the subject.	**Strengths:** Thorough literature review. **Limitations:** The assessment of labor pain is particularly problematic because the numeric scale does not differentiate the type of pain which changes throughout the duration of labor (from visceral cramping pain to continuous somatic pain). Therefore, these results are only partial. Relatively small research group.

Johns Hopkins Evidence Appraisal: **Strength:** Level III: Qualitative **Quality:** Good: Reasonably consistent results; fairly definitive conclusions; reasonably consistent recommendations based on fairly comprehensive literature review that includes some reference to scientific evidence.		The majority (97; 86.6%) of respondents believed that the use of non-pharmacological methods of labor pain relief reduced anxiety before next delivery. **Conclusion:** Most women are interested in non-pharmacological methods of pain relief during childbirth. The use of natural techniques reduces the intensity of labor pain.	
Author Recommendations: Develop and implement programs of antenatal education, which will include comprehensive information about the available nonpharmacological methods of labor pain relief and its effectiveness.			
Implications: Pain in childbirth is a complex phenomenon that usually needs different approaches. Moreover it seems to be crucial to understand how women prepare themselves for the process of childbirth and what would be their perception of birth pain.			

Source: Thies-Lagergren, L., Hildingsson, I., Christensson, K., & Kvist, L. J. (2013). Who decides the position for birth? A follow-up study of a randomised controlled trial. *Women and birth*, *26*(4), e99-e104. https://doi.org/10.1016/j.wombi.2013.06.004			
Purpose/Sample	**Design (Method/Instruments)**	**Results**	**Strengths/Limitations**

Purpose: To investigate factors associated with adherence to allocated birth position in an RCT and to investigate factors associated with decision-making for birth position. **Sample/Setting:** Two-hundred, eighty nine women who had been allocated to the experimental group of the RCT and who had answered the follow-up questionnaire. This comprised 177 (62%) women who gave birth on the birth seat (adherence group) and 112 (38%) women who did not give birth on the birth seat (non-adherence group). RCT performed in Lund, Sweden. **Johns Hopkins Evidence Appraisal:** **Strength:**	A follow-up questionnaire exploring women's experiences with allocated birth positions was undertaken between 2010 and 2011 and included women who had previously participated in an RCT. The RCT was initially carried out to compare levels of instrumental vaginal birth in healthy nulliparous women who gave birth on a birth seat or in any other position for vaginal birth. Women allocated to the control group were free to choose whatever preferred position except for using the birth seat.	Approximately 14% of participants in both groups reported that they had received information about the pros and cons of different birth positions. Almost one-third of the women in both groups were encouraged by the midwife to adopt a suggested position in the second stage of labor, despite randomization and these women were given an explanation for the midwife's choice. More than 50% of the women reported that the midwife did not encourage any particular position Fewer women in the adherence group reported birth complications and fewer of the women in this group reported their overall birth experience as less than positive. Women in the adherence group reported a more positive experience of the birth position. The adherence group also experienced the length of the second stage of labor and the total length of labor	**Strengths:** Seven first time mothers, not participants in the RCT, pre-tested the questionnaire to ensure that the questions were comprehensible. **Limitations:** Low response rate. Low generalizability. The questionnaire did not include a question about feeling disappointed when expectations of birth or birth positions were not fulfilled.

Level I: Randomized Control Theory **Quality:** Good: Reasonably consistent results; some control, fairly definitive conclusions; reasonably consistent recommendations based on fairly comprehensive literature review that includes some reference to scientific evidence.		as shorter than the non-adherence group. These differences were statistically significant. There were no differences between the groups for experience of labor pain or experiences of pain intensity. There were no differences between the groups for feeling relaxed, feeling unsafe or feeling uncomfortable. The women in the adherence group expressed feeling powerful and strong more often than the non-adherence group. They also reported feeling safe and secure, comfortable, protected and self confident, to a higher degree than women in the non-adherence group Fewer women in the adherence group reported feeling tense, weak or exposed. **Conclusion:** The main finding of this study was that women who gave birth on the birth seat more often reported	

		that they themselves made the decision about birth position and felt that they had been given the opportunity to take their preferred position. These women more often reported emotions such as feeling powerful, protected and self-confident compared to women who did not adhere and more women who gave birth on the birth seat reported their overall birth experience as positive. The upright, seated birth position aroused a number of positive emotions.	

Author Recommendations:
It may be argued that an upright position helps women to feel more in control and that therefore women who used the birth seat had positive memories of how they felt during labor and birth. Empowering women to be part of decision-making may help reduce the occurrence of childbirth fear. Our findings suggest that if women feel themselves to be participants in decision-making during birth, pain may play a lesser role in their overall birth experience.

Midwives have great power to shape upright birth positions by the way they use the environment or rearrange the environment to take the focus off the bed. When midwives offer choices to birthing women they enable them to feel empowered and in this way, birthing women's autonomy is strengthened. Feelings of empowerment and autonomy may lead to greater childbirth satisfaction**.**

More knowledge is needed about what information is given to pregnant women antenatally regarding birth positions and how this information is presented.

Implications:
These results are in line with an American study which showed that birthing women want to be active participants in their care, however they do not desire to make all of the decisions. Feelings of a partnership between themselves and the midwives and other birth attendants gave the most positive experience of childbirth.

Also, the overall experience of labor was more positive for the birth seat group than for women who did not adhere, despite the fact that they rated their labor pain as equal to the non-adherent group. Even though labor pain appears to be one of the most significant and defined reasons for fear of future childbirth, labor pain and pain relief seems to not play a major role in satisfaction with the childbirth experience. Women who are supported to feel powerful, protected and self-confident are unlikely to develop fear of childbirth.

Source:
Thies-Lagergren, L., Ólafsdóttir, Ó. Á., & Sjöblom, I. (2020). Being in charge in an encounter with extremes. A survey study on how women experience and work with labour pain in a Nordic home birth setting. *Women and Birth*. https://doi.org/10.1016/j.wombi.2020.01.015

Purpose/Sample	**Design (Method/Instruments)**	**Results**	**Strengths/Limitations**
Purpose: To explore how women experience and work with labour pain when giving birth in their own home. **Sample/Setting:** 1649 women participated in the study by filling in the questionnaire about their planned homebirth. **Johns Hopkins Evidence Appraisal:** **Strength:** Level III: Survey Study	Quantitative and qualitative data was prospectively collected and altogether 1649 women with a planned home birth answered closed and open-ended questions about labour pain and birth experience. This study is nestled within the Nordic Home Birth Research project, a collaborative survey running between 2008–2014 with the purpose of enhancing knowledge regarding planned home births in Denmark, Iceland, Norway and Sweden. The quantitative data were derived from	While labour pain was often experienced as positive or very positive, the intensity was experienced as severe or the worst imaginable pain. Two main themes arose from the women's´ descriptions of their birth experience regarding labour pain: *An encounter with extremes* and *Being in charge at home*.	**Strengths:** The study uses both quantitative and qualitative data at the same point in time and within the same group of participants. This method of using different types of data has been considered to be an innovative way of addressing complexities such as the experience of managing labour pain. This results in a deeper and more holistic approach in understanding women's perceptions of labour pain and how to work with pain in a home birth setting. **Limitations:**

Quality: Good: Reasonably consistent results; sufficient sample size for the study design; fairly definitive conclusions; reasonably consistent recommendations based on fairly comprehensive literature review that includes some reference to scientific evidence.	answers to two questions, A first question *'How did you experience the intensity of labour pain during labour and birth?'* was answered based on a Likert scale from 1 to 7, where 1, denoted no pain at all and 7, the worst imaginable pain. A second question '*How did you experience labour pain during labour and birth*?' was answered where 1 denoted a very negative experience and 7 a very positive experience on the Likert scale. Qualitative data were derived from an open-ended question, phrased; '*Please tell us in your own words about your birth experience.*	*An encounter with extremes*: on one hand labour can be very hard work and very painful, but on the other hand it is complemented by an enriching and strengthening experience, '*wonderful in its power*'. Barbaric perceptions: '*Whichever breathing I used, the contractions seemed to tear my body apart….' (Dm), 'It was storming and burning inside of me'(Sw), 'The furious contractions trembled through my body'. (Ic).* Enriching experience: Even if giving birth was hard and painful work, the women's expressions were also phrased in positive terms, without denying their struggles. Working with labour pain instead of working against it, helped women to be in command, which enhanced them finding the power in	The fact that more than half of the answers came from women in Denmark may be a limitation. Further research would be needed to compare with other countries or cultures.

		themselves. *'The pain I felt was like I was in the middle of a thunderstorm with both hands stretched against the sky. Releasing the control and giving way actually meant that I was in charge of what happened'(Sw).* Support on one's own terms: *'I was completely in charge and the midwife was there if needed. I caught the baby myself' (No)*. Being given specific information by the midwife made it easier to work with the pain; for instance, knowing that the baby was descending. *'Since I knew that the pressure during the pushing phase was because the baby had to rotate, it was easier for me to handle the intense contractions*' *(Sw)*.	

		Relieving actions: The action most often mentioned was relaxation. Women expressed how making sounds could comfort themselves during labour and birth '*I was making so much noise because it helped it to not hurt (No)'* and using mantras for example saying '*come*' to the baby. - '*Positive ahh sounds, so I said 'ahhh' and 'jaaaaa' … made me relaxed*' *(Dm).* **Conclusion:** This study provides knowledge about women's experiences of labour pain in a home birth setting who used varying strategies to work with labour pain. This is a subject that should be explored further since results could also apply to facility-based birth settings.	

Author Recommendations:

A highly interesting finding was that even though a vast majority of the women scored 5 or higher on the Likert scale, indicating high pain intensity, they at the same time scored 5 or higher on the scale indicating a positive experience of labour pain. It would be interesting to carry out further studies to explore the rich language used to express paradoxical sensations, midwives might use the language of homebirth women, when informing mothers-to-be about labour pain and ways to work with pain.

It is also noteworthy that only half of the 976 women who provided the qualitative data about their birth experiences, referred to labour pain and pain relief. This indicates that even though

birth often was perceived as being painful it is not always the most central concept or the first thing that came to mind when women wrote about their experiences of home birth. However, the majority of those who did write about pain reported that the intensity of labour pain was severe. There is a lot still to be learned from women's approaches to labour pain in a home birth context. The meaning of labour pain will probably continue to be shaped by the social environment and other contextual factors within which it is experienced. Salutogenic views such as optimism or resilience that seemed to be in the character of the women of this study, which impacted their experiences of labour pain when giving birth at home, could be explored in further research.

Implications:
Women perceived labour pain as severe but manageable and were dedicated to completing the birth at home. Being at home enabled the women to exercise autonomy and work with labour pain on their own terms, together with the midwife and support persons.

The home environment enabled the women to exercise their autonomy to feel in control during the birth process, to feel relaxed and to cope with labour pain.

Knowledge of how women and midwives challenge and work with labour pain as a natural force has not been visible in a health system that is medically dominated. This study brings some of this knowledge to light and could be used in different birth settings and enhance midwives' skills to support birthing women in any place women choose to give birth.

Source:
Townsend, B., Fenwick, J., Thomson, V., & Foureur, M. (2016). The birth bed: A qualitative study on the views of midwives regarding the use of the bed in the birth space. *Women and Birth*, *29*(1), 80-84. https://doi.org/10.1016/j.wombi.2015.08.009

Purpose/Sample	**Design (Method/Instruments)**	**Results**	**Strengths/Limitations**
Purpose: To describe midwives' perceptions of the birth bed. **Sample/Setting:** Fourteen midwives from a regional Queensland public hospital maternity unit. The Birth Suite had eight birthing rooms, each with	Qualitative descriptive design. Fourteen midwives participated in digitally recorded and transcribed interviews. Midwives were asked to share their perceptions of the birth environment. Participants were asked two broad overarching questions; "Can you share your perceptions of the	Four themes were identified: *The first, described beliefs that using the bed formed part of women's childbirth expectations.* All but one of the participants described the bed as the most dominant feature of the birth space. Some 50% of midwives expressed the opinion that women	**Strengths:** Insights gained add to the growing body of evidence on the effect of birth unit design on the birth experience of the woman as well as midwifery practice. **Limitations:** Findings were derived from a small convenience sample of midwives working in one maternity unit in

shower facilities. Standard to each room was a bed that was surrounded by an abundance of visual medical equipment. There was minimal decoration. At one end of the Birth Suite were an additional two Birth Centre rooms. These rooms had been purpose built and each contained a large pool which was the central feature of the room. The beds were pushed to one side and covered with domestic-type quilts rather than hospital-type, white linen. The Birth Centre rooms were more aesthetically pleasing with wooden floors, artwork, dimmable lamps and all equipment hidden from sight. Only clients of the Midwifery Gr oup Practice (caseload care) accessed these rooms.	birth environment and how you encourage women to use the birth space." Thematic analysis was used to analyse the data set.	preferred to give birth on the bed. Participants hypothesized that women's expectations around using the birth bed were most likely the result of social and multimedia messages that depicted, and thus constructed, the bed as a necessary part of the birth process. A number of midwives went on to describe how challenging it could be to get a woman off the bed or even to encourage them to use different positions. One midwife expressed the opinion that considerable expertise was required to motivate women to get off the bed; '*I would say about 40 percent of the time there's a lot of resistance. You really have to work hard in order to get them off the bed but, I would say that it is another skill that you learn.* *A second theme, captured midwives' perceptions that the bed was also an object required to safely undertake their work.* Many went on to describe how the bed served a particular purpose in assisting them undertake the important activity of 'assessment'.	southeast Queensland and so have low generalizability. The views expressed by the clinicians' may have been influenced by interview bias and may not represent their clinical practice.

Johns Hopkins Evidence Appraisal: **Strength:** Level III: Qualitative Descriptive **Quality:** Good: Reasonably consistent results; sufficient sample size for the study design; fairly definitive conclusions; reasonably consistent recommendations based on fairly comprehensive literature review that includes some reference to scientific evidence.		Having women on the bed was perceived as safer ensuring the midwife's ability to access the woman and move around the room. Some midwives also considered it more appropriate that women be on the bed when requiring a consultation with another member of the team such as an obstetrician. Conversely, they also perceived that doctors would prefer women in this position. *The third theme described how others commonly worked to ensure the woman stayed off the bed.* While some midwives avoided the use of the bed altogether, others would only consider women moving off the bed if everything was 'normal'. Clinicians who were comfortable working in a space where the bed was not central shared how they routinely did observations and assessments in chairs, on the floor, or in the shower. If a bed was used to assess a woman they quickly moved women off once the assessment was completed. Those midwives who had worked in a caseload model also talked about the importance of preparing	

		women during pregnancy to be mobile and active during labor …those women who had been to 'classes' or educated themselves were more likely to mobilize. *Lastly, there was evidence that whilst wanting to avoid the use of the bed, some were reluctant, fearing potential reprimand.* Some midwives expressed a fear that if an emergency should occur they would '*get into trouble'* for not having the bed in its '*correct*' position. **Conclusion:** The themes highlight differences in how the midwives conceptualized the use of a bed within a birth space. While some avoided the use of the bed altogether others would only conceive of women moving off the bed if everything was 'normal'. How the bed was culturally constructed appeared to dictate clinical practice.	

Author Recommendations:
This finding speaks to what Hunter has previously described as the 'unwritten rules' of the Birth Suite. In this work Hunter identified that senior midwives, working in hospital settings, commonly enforced a set of rules or expectations around how women should be managed during labor. Less experienced and/or midwives new to the environment struggled to challenge these, even when they knew the evidence did not support them, for fear of being labelled 'non-compliant' or a trouble maker and thus 'not welcome' as a team member.
For midwives who work in other birth environments, the bed was something to be avoided. If it was used, the bed's purpose was very different: it commonly became a tool to increase a woman's ability to mobilize and work with her body during contractions rather than an object to 'lie on'. These midwives' descriptions of practice reflected a construction of childbirth as a

normal life event. Risk was seemingly absent from any decision making by these midwives about the bed.

Midwives have the ability to reconfigure the birth space. Removing the bed from its standard central location is one simple but powerful action that has the potential to make a difference to how a woman might work with her body as she meets the challenge of labor. Likewise the messages and meaning created by this move will also help clinicians reconstruct childbirth and thus how they practice in the space.

Implications:
It is interesting to note that in the first instance midwives considered that laboring women were in fact the ones choosing how the bed was utilized. Yet for most midwives the bed remains a dominant (necessary) feature of the birth space.

The continual construction (in social and other media) that birth needs to take place in a space designed only to deal with 'acute care emergencies' perpetuates a cultural norm around the birth bed as central, important and necessary to labor and birth. However, what became evident in this study was that some midwives were unable to appreciate how the environment, particularly the 'bed', might be influencing their own practice and construction of birth.

Reflecting on the meaning of an object, such as the bed, is important if clinicians are to fully understand how the birth environment influences their practice and thus women's experiences of labor and birth.

Source:
Whitburn, L. Y., Jones, L. E., Davey, M. A., & Small, R. (2014). Women′ s experiences of labour pain and the role of the mind: an exploratory study. *Midwifery*, *30*(9), 1029-1035. https://doi.org/10.1016/j.midw.2014.04.005

Purpose/Sample	**Design (Method/Instruments)**	**Results**	**Strengths/Limitations**
Purpose: To examine women′s experiences of labour pain within the perspective of modern pain science. An improved understanding of labour pain will assist in informing and enhancing pain management approaches. .	A qualitative study was performed using phenomenology as the theoretical framework. Data were collected from telephone interviews. Thematic analysis of transcripts was performed. Women participated in a pre- and post-birth interview conducted by LW. The pre-birth interview was designed to explore women′s expectations, fears and	A woman′s state of mind during labour may set the stage for the cognitive and evaluative processes that construct and give meaning to her pain experience. Women′s descriptions of their pain experiences suggested two states of mind. The first was characterised by the mind remaining focussed, open and accepting of the	**Strengths:** Explores important and under-researched concepts relating to women′s experiences of labour pain. Has applied the knowledge of modern pain science and a focus on cognitive processes to women′s descriptions of labour pain.

Sample/Setting: A diverse sample of 19 women who gave birth in a large maternity hospital was interviewed in the month following labour in Victoria, Melbourne, Australia. Stratified, purposive sampling was used in order to represent both primiparous and multiparous women in the sample, as well as women who were planning to give birth in both the hospital birthing suites and the Family Birth Centre (a midwifery-led model of care at the hospital for women at low risk of complications). **Johns Hopkins Evidence Appraisal:** **Strength:** Level III: Qualitative Study **Quality:** Good:	ideals regarding the labour and the birthing environment and additionally allowed women to build a rapport with the researcher. The post-birth interview was designed to capture women′s experiences of labour pain and this forms the focus of this paper. The post-birth interview was conducted over the phone within four weeks of giving birth at a time chosen by the women and lasted between 30 and 45 minutes. Interviewing over the phone allowed women to break up the interview if they needed to attend to the infant or other necessary tasks. Women were asked to reflect on the birth and describe their memories of the experience from the onset of the 1st stage of their labour through to the completion of the delivery of the placenta.	inner experience, including pain. This state tended to be accompanied by a more positive reporting of the labour experience. The second was characterised by the mind being distracted and thought processes featured pain catastrophizing, self-judgment and a negative evaluation of pain. Although these two mind states appeared to be distinct, women could shift between them during labour. Women′s evaluations of their pain were further influenced by their personal beliefs, desires, the context and the social environment. **Conclusion:** A women′s state of mind during labour may set the stage for the cognitive and evaluative processes that construct and give meaning to their pain experience.	Findings provide the foundation for future research. Participants included both primiparous and multiparous women from two different models of care. **Limitations:** The study was small and exploratory in nature. The interview relied on recall up to four weeks after women′s labours.

Reasonably consistent results; fairly definitive conclusions; reasonably consistent recommendations based on fairly comprehensive literature review that includes some reference to scientific evidence.			

Author Recommendations:
Because this is the first study to our knowledge to describe cognitive processes that are related to the experience of pain in labouring women, it is important that subsequent research explores these concepts further.

Implications:
Developing interventions for labour pain that promote positive evaluative processes and cultivate a state of mind focussing on the present may improve women′s experiences of labour pain.

Source:
Zileni, B. D., Glover, P., Jones, M., Teoh, K. K., Zileni, C. W., & Muller, A. (2017). Malawi women's knowledge and use of labor and birthing positions: a cross-sectional descriptive survey. *Women and Birth*, *30*(1), e1-e8. https://doi:10.1016/j.wombi.2016.06.003

Purpose/Sample	**Design (Method/Instruments)**	**Results**	**Strengths/Limitations**
Purpose: To assess women's knowledge and use of different positions during labor and birthing. **Sample/Setting:** The study occurred from July 2012 to October 2013 in the low-risk	The study used a cross-sectional descriptive survey using face-to-face exit interviews, using a structured questionnaire. A descriptive analysis of the categorical variables was conducted to examine frequencies and percentages.	The majority of women knew about walking (66.4%) and lateral (60.6%) as labor positions, whereas 99.2% knew about the supine as a birthing position. Half of the women (50%) walked during labor and the majority (91.4%) gave birth whilst in supine position. Midwives were the main source of information on	**Strengths:** Applies current research to the Malawi population. **Limitations:** Low generalizability**.** The study recruited postnatal women only, who could have responded to the questionnaire based on the final outcome of their childbirth.

postnatal ward of the NBMU in Lilongwe, Malawi with 373 low risk postnatal women. The inclusion criterion was: all postnatal women who had a normal spontaneous vertex delivery with a term pregnancy (37–42 weeks) and had received initial postnatal care in the first 24–48 h after birthing. **Johns Hopkins Evidence Appraisal:** **Strength:** Level III: Descriptive Survey **Quality:** Good: Reasonably consistent results; sufficient sample size for the study design; fairly definitive conclusions; reasonably consistent recommendations based on fairly comprehensive		positions used during childbirth. Of the 360 women who had knowledge of at least one labor position, the majority of them (91.7%) also could state the advantages of these birthing positions and a small number of the women (12.8%) also knew the disadvantages. Out of the 370 participants who had knowledge of different positions used during birthing, the majority (88.1%) knew the advantages of these birthing positions. The majority of women who had knowledge of labor and birthing positions reported that midwives had informed them about the different birthing positions. The results show that midwives had informed most women about walking (58.7%) and using a lateral position (53.9%) during labor. Similarly, most women heard from the midwives about using the supine position when giving birth (92.5%).	

literature review that includes some reference to scientific evidence.		Most women knew that upright positions, when used during labor, help with quick dilatation of the cervix and the quick descent and birth of the baby. This finding concurs with what has been reported in previous studies. Some women resisted walking around during labor to prevent giving birth whilst walking. This is possibly due to the influence of health professionals, since Lugina et al. report that most doctors and midwives do not allow women to walk around during labor, in order to prevent giving birth whilst walking. Most women knew upright positions could help to reduce the amount of pain during labor. Some assertions by the women in the study about labor positions that were not necessarily substantiated by the evidence. Some women (39.8%) reported that a lateral position helps with quick descent and birthing of the baby, thus reducing the duration of both the	

		first and second stages of labor. More than half of the women (50.6%) recruited for this current study asserted that the supine position helps with the safe birthing of the baby. Most women asserted that the supine position helps with quick birth of the baby by reducing the duration of the second stage of labor. The majority of women in this study reported that their midwives informed them during the antenatal period about walking and using a lateral position during labor and using a supine position when giving birth. The supine position was the most commonly used position during women's recent childbirth with the majority of women (91.4%) giving birth whilst in this position. **Conclusion:** Childbirth education should include information on the various labor and birthing positions. Midwives should be equipped with	

		appropriate skills to help women use different positions during childbirth. As such, women should be made knowledgeable about the different birthing positions so that they can make informed decisions.	

Author Recommendations:
Changes to women's childbirth education and professional practice are recommended. The childbirth education should include information on the various positions that can be used during labor and birthing, and their associated benefits. In addition, midwives should allow and encourage women to labor and give birth in different positions, such as the upright positions, that have shown to be associated with favorable maternal and neonatal outcomes.

It is incumbent upon health professionals to inform/educate women about different positions that can be used during labor and birthing, as based upon the evidence.

Implications:
Midwives are the main source of information on birthing positions, as the majority of women reported that they had learned about different birthing positions from their midwives. It is incumbent upon health professionals to inform/educate women about different positions that can be used during labor and birthing, as based upon the evidence.

Education about different birthing positions is needed for women who deliver at the maternity unit so that they can make informed decisions on their own options for childbirth. However, midwives must have the competence to encourage and assist women give birth in different positions, so professional development of midwives in childbirth positions is a priority.

This study calls for professional development sessions, such as seminars and training sessions, aimed at equipping the midwives and doctors with competence, confidence, and current evidence-based information on the benefits of different birthing positions, such as upright and lateral positions. Furthermore, the training sessions could help to equip the midwives and doctors with skills on how to assist childbirths with the woman in upright positions.

Author Recommendations:
Health professionals should view rebozo as an easy accessible clinical tool with high user acceptance and possible positive psychological and clinical implications.

The rebozo technique can be seen as a tool for cooperation between a woman, the midwife and the woman's partner.

Randomised controlled trials are warranted in order to test the clinical, hypothetical benefits of the rebozo technique, and elements such as labour stage, the woman's position, and the duration of the performance should be taken into account.
Implications: One interesting finding was that the majority of the women experienced the rebozo technique as potentially conducive to the birthing progress. Bearing in mind that the rebozo technique can be performed while the woman is in different positions and induces movements of her hips, the technique is indeed in accordance with the recommendations put forward by the World Health Organisation (WHO). On the basis of systematic reviews the WHO has identified four core clinical practices that promote, protect, and support the normal physiological labour process: the freedom of movement in terms of standing, walking, swaying movements, and hand and knee position. Several advantages of upright positions have been stated for both the woman and the child. The women in the present study experienced the rebozo technique as contributing to a feeling of teamwork, thus strongly indicating psychological support. Other studies support this finding of interacting processes as mediators in the management of pain. The rebozo technique can be utilised as an easy and low-practical noninvasive pain management tool during labour.

Source:
Iversen, M. L., Midtgaard, J., Ekelin, M., & Hegaard, H. K. (2017). Danish women's experiences of the rebozo technique during labour: A qualitative explorative study. *Sexual & Reproductive Healthcare*, *11*, 79-85. https://doi.org/10.1016/j.srhc.2016.10.005

Purpose/Sample	Design (Method/Instruments)	Results	Strengths/Limitations
Purpose: To explore women's experiences of the rebozo technique during labour. **Sample/Setting:** 17 participants were recruited from two different-sized Danish hospitals and identified by applying a purposeful sample strategy.	Qualitative study based on individual telephone interviews, analyzed by means of qualitative content analysis and inspired by interpretive description. The average time from giving birth to conducting the interview was 30 days, with a range of 9–58 days.	The main theme expressed the women's overall experience with the rebozo: "Joined movements in a harmless effort towards a natural birth". The women experienced that the technique created bodily sensations, which reduced their pain, and furthermore they expressed that it interrelated the labour process and produced mutual involvement and psychological support from the midwife and the	**Strengths:** The study contributes with a deeper and more nuanced understanding of a topic where only limited knowledge exists. **Limitations:** Efficacy studies are warranted.

Only women fulfilling two predetermined criteria were invited to participate: (1) they received the rebozo technique during labour and (2) they had fluent oral Danish skills. Participants were recruited during a 2-month period (from April to June 2014) from two different public hospitals. One hospital was the Copenhagen University Hospital Rigshospitalet, which is the most specialised hospital in Denmark, serving around 10% of all births in the country. The second hospital was Roskilde/Koege Hospital, Region Sjaelland, which is a medium-sized birth facility centre, serving 2266 deliveries in 2012, corresponding to nearly 4% of the		women's partner. The rebozo technique was in most situations carried out because the midwife suspected a foetus malposition. In more than half of the deliveries, the midwife answered that a change in the labour was observed after rebozo.	

total births in Denmark. **Johns Hopkins Evidence Appraisal:** **Strength:** III, Qualitative Study **Quality:** Low, insufficient sample size for the study design		**Bodily sensations** They attributed the pleasure to the movement in their hips and described that it made their muscles relax. The women positively articulated that they had less need of medical pain relief as a response to using the rebozo. **Interrelating the labour process** The majority of the women experienced rebozo as affecting the labour's progress, referring to the frequency of contractions or how they felt the baby's head descended in their pelvis: it was like I could feel how they became regular and they lasted a bit longer, but weren't so painful, so they changed character from before to after… (I, 15) If medical interventions were necessary in order to strengthen the contractions, some women argued that the rebozo did not influence their labour. Yet they highlighted other positive	

		experiences produced by the technique, for example, pain relief. **Mutual involvement and psychological support** By performing the rebozo technique, the women considered the midwife as involved in their well-being and wanting the best for them. It was, however, not necessarily the rebozo technique itself that fostered this experience, but rather the midwife's initiative in proposing rebozo. The women described this as a proactive action, and felt positive about doing something concrete physically, which led to a feeling of empowerment. Furthermore, it contributed to a feeling of not going through labour alone and helped them to find mental peace: …mentally it made me feel calm, I could feel that it gave me, what can I say, presence, sort of the sense that some care was being provided in that situation, and that was enormously comforting. (I, 15) The women had not expected the partner to	

		have a specific task during labour, but they described it as a positive surprise when the partner carried out the rebozo technique. The involvement of the partner contributed to a feeling of not going through labour alone, and the technique became an instruction or frame for cooperation between the woman and her partner: **Conclusion:** The experiences of the rebozo technique were overall positive and both of a physical and psychological nature.	

Author Recommendations:
Health professionals should view rebozo as an easy accessible clinical tool with high user acceptance and possible positive psychological and clinical implications.

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Randomised controlled trials are warranted in order to test the clinical, hypothetical benefits of the rebozo technique, and elements such as labour stage, the woman's position, and the duration of the performance should be taken into account.

Implications:
One interesting finding was that the majority of the women experienced the rebozo technique as potentially conducive to the birthing progress. Bearing in mind that the rebozo technique can be performed while the woman is in different positions and induces movements of her hips, the technique is indeed in accordance with the recommendations put forward by the World Health Organisation (WHO). On the basis of systematic reviews the WHO has identified four core clinical practices that promote, protect, and support the normal physiological labour process: the freedom of movement in terms of standing, walking, swaying movements, and hand and knee position. Several advantages of upright positions have been stated for both the woman and the child.

The women in the present study experienced the rebozo technique as contributing to a feeling of teamwork, thus strongly indicating psychological support. Other studies support this finding

of interacting processes as mediators in the management of pain. The rebozo technique can be utilised as an easy and low-practical noninvasive pain management tool during labour.