Contributing Factors and Outcomes of Intuitive Natural Childbirth

Contributing Factors and Outcomes of Laborland during Intuitive Natural Childbirth Experiences

Grace E. Haaland

Princeton University

Jarrod’s suggestions:

Intuitive Birthing Contributes to Positive Natural Childbirth Experiences

Laborland: Intuitive Birthing Contributes to Positive Natural Childbirth Experiences

This thesis was submitted to Princeton University in partial fulfillment of the requirements for the degree of Bachelor of Arts in Psychology.

April 2012

I pledge my honor that this paper represents my own work

in accordance with University regulations.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Grace E. Haaland

Acknowledgements

I would first like to thank Jarrod Lewis-Peacock for his tremendous guidance, support, and enthusiasm throughout this project…

I give great thanks to my mother…

Dad…

Abstract

Abstract is one double-spaced paragraph in block format (do not indent)

TABLE OF CONTENTS

**Abstract 4**

**Introduction** **6**

Laborland as a Descriptive Concept ?

Neuroscientific Understanding of Laborland ?

Disturbances ?

Outcome Measures ?

A Note on Subjectivity ?

Research Goals ?

**Methods** **?**

Participants ?

Materials ?

Constructs ?

**Results** **?**

Unknown ?

Unknown ?

Unknown ?

**Discussion** **?**

Unknown ?

Unknown ?

**References** **?**

**Tables ?**

**Figures ?**

**Appendices**

Appendix A. Prenatal Survey

Appendix B. Postpartum Survey

Appendix C. Psychology Department Requirements

Contributing Factors and Outcomes of Intuitive Natural Childbirth

Every day, around the world, almost 400,000 babies are born (“World,” 2012). By the numbers, the fact of childbirth is most mundane and routine; yet, for each woman experiencing it, childbirth promises much more. For many, it is a unique and meaningful experience that will be remembered vibrantly for the rest of their lives. While childbirth is defined by the physiological process of birthing a baby, it necessarily caries equal importance as a psychological transition from woman to mother; childbirth is the launch of a new life-phase, setting the tone for the development of the mother-child relationship (Odent, 2002). This understanding of childbirth demands that attention thus be paid to the emotional experience of women during and after labor in addition to the medical measures of labor and the postpartum period. A mother’s experiences and perceptions during birth are important during the postpartum period and extending far into the future. How a woman remembers her birth matters because a negative memory can increase her susceptibility to post-traumatic stress disorder and post-natal depression, even discouraging her from having further children (Waldenström, 2003). Whether or not a woman feels she was in control of her circumstances and her experience contributes to her birth satisfaction and general postpartum emotional well-being (Larking et al., 2009). Some researchers even propose that the way a society views and treats childbirth affects mothers’ and babies’ capacity to love. The circumstances and cultural understanding surrounding birth can shape the values, experiences, and future of our society (Odent, 2002).

Once we recognize that childbirth is far more complex than simply assuring a physically healthy mother and baby, we will need to pay attention to exactly what shapes, enables, and defines an optimal childbirth from a psychological perspective. Important questions are what factors help produce positive outcomes and what can we learn about how to facilitate these beneficial experiences and circumstances. Thus, it is important to investigate variables at play that contribute to positive experiences during labor and birth and positive reflections on the experience going into the future. Ultimately, this inquiry leads us to questioning whether the way women give birth today is the best way medically, emotionally, and psychologically. What are the tools available to us, as birthing women and as midwives/doulas/partners/loved ones that can encourage the best possible experience in all of these domains?

* “A positive birth experience is associated with long- lasting benefits (Beech and Phipps, 2004), an affirmative relationship with the newborn (Green et al., 1990) and a positive attitude towards motherhood that contributes to the woman’s self- esteem and feelings of accomplishment (Simkin, 1991). [Larkin et al., 2009]

**Laborland as a Descriptive Concept**

These general inquiries at large are beyond the scope of this project, so a narrower focus is required. This research will attend to natural, unmedicated childbirth as one avenue within the variety of options open to modern women in order to address the larger questions above; within this, it will focus on the state-of-mind of a laboring woman and how her state-of-mind interacts with other subjective measures of labor and the postpartum period.

Among midwives who attend natural childbirth and women who have experienced it, a term arises again and again to describe a particular experience shared by many during natural childbirth. The term “laborland” is used to describe an other-worldly, trance-like state of consciousness that women may enter during natural childbirth. It is variously described as ‘going to another planet’ (Odent, 2002, p. 87), going to the “back of the cave” (Cheyney, 2008, p. 263), or “’listening’ to and ‘hiding’ in their bodies” (Parratt, 2002, p. 12). It is, fundamentally, a state of being that emerges from the powerful and complex hormonal changes and balances that coordinate and propel labor and birth. Since this orchestration arises on its own, a laboring woman’s job is often to simply get out of the way. To let her body fulfill its potential by not disturbing the process. The experience of laborland is one in which women lose touch with their rational, thinking brain and find themselves intimately in tune with the physical sensations of their laboring bodies, their babies, and the intricate way each woman’s body adapts to enable the birth of a child. Seeing the similarities between this behavior and how all other mammals give birth, laborland is understood as process of reverting back to a primal, animalistic state – one in which the body takes over. Prominent midwife Ina May Gaskin aptly describes this process as letting “your monkey do it,” or releasing your “inner primate” (Gaskin, p. 37). Laborland facilitates a woman’s connection to her body and her baby, letting her in on signals from both that will guide her movements to promote her labor (Blix, 2011).

Placing laborland within the realm of primitive activity, birth professionals often draw metaphors between laborland and other primitive functions like sleep or sex. These comparisons serve as a benchmark for understanding the conditions conducive to laborland and a successful natural childbirth. Intimacy and trust “[enable] mothers to feel ‘comfortable enough to surrender to the power of contractions’” (Cheyney, 2008, p. 262). Privacy and not feeling observed allow the mother to feel comfortable and relaxed. A quiet, dimly lit environment – no talking – frees the mother from distractions (England & Horowitz, 1998; Odent, 2002).

A woman in laborland is often identified by having a “far off look,” being unable to answer questions or communicate during her contractions and having a “primal” and intuitive “’birthsong’ – the sound mothers make to cope with the intensity of contractions and pushing” (Cheyney, 2008, p. 263; England & Horowitz, 1998). She may lose self-control or self-consciousness (Parratt, 2002), going into a sort of trance. Her focus becomes intense and directed inwards, such that her awareness of peripheral items fade and her “mental chatter” disappears (England & Horowitz, 1998, p. 9; Parratt, 2002; Odent, 1984).

The focus of laborland is surrender – surrendering to the body and releasing inhibitions and desires to control, contain, and correct. It requires being present with one’s experiences moment by moment and going intensely into oneself as to cut oneself off from the world (Odent, 2002). As a result, unexpected postures and noises often arise (Odent, 2002). The goal of this surrender is to engage a bodily response rather than a cognitive response, to “approach labor from a sensory perspective rather than a cognitive one” (Parratt, 2002, p. 12). Parratt and Fahy divide this surrender into, “relinquishing mind control” and “releasing the body” (2003, p. 18). Relinquishing mind control occurs when one’s external environment drops from awareness and one’s conscious state alters. “It’s only after her logical, rational, verbal left-brain comes to a screaming halt, that her intuitive, unconscious right-brain takes over to carry her through a journey that can’t be navigated intellectually” (England & Horowitz, 1998, p. 181). While the author here is employing an overly simplistic neuroscientific understanding, the metaphorical opposition presented holds true. If this transfer of power occurs, a woman’s response becomes “an instinctive bodily one in the form of noise or movement that is the behavior of the primal brain” (Parratt & Fahy, 2003, p. 20). This brings us to releasing the body. This release happens progressively throughout labor and is easily disturbed, halted, or reversed. Women in this state of laborland “act deliberately, spontaneously seeking and easily finding the positions that suit them best, and that also turn out to be the most efficient physiologically. (Odent, 1984, p. 12-13). This deliberateness gives rise to the idea of “doing nothing extra” (England & Horowitz, 1998, p. 127). Ultimately, “the mounting intensity of labor forces complete surrender of our body and will, dissolving our egos, ideas, and familiar sense of self” (p. 8). Releasing the body enables a woman to engage with her embodied knowledge. Cheyney describes this as, “knowing that was not intellectual, rational, or logical, but more bodily and experiential” (2008, p. 258-59). As one woman stated, “I couldn’t birth my baby with my brain” (p. 259). Achieving this surrender allows women to balance “self and babe,” to work together with, rather than oblivious to or in opposition to, her baby (Parratt & Fahy, 2003, p. 18). She creates a partnership with her baby (England & Horowitz, 1998). Parratt and Fahy (2003) warn that when mind control is not relinquished and a cognitive response eclipses a bodily one, medicalization of childbirth becomes necessary. Conversely, if pain medications are used, these drugs knock out the bodily cues and instinctual knowledge; they force a cognitive understanding of the laboring process, “interfering with instinctual birthing” (p. 20). Thus, laborland inhabits the domain of natural, unmedicated childbirth.

As alluded to above, laborland is a very personal, intimate experience, but can be easily influence by the external environment. While each women ultimately must empower herself to achieve laborland, external features like the support she receives can enable and support the development of a woman’s internal experience (Parratt & Fahy, 2003). She must be free from concerning herself with the external environment while that external environment conspires to support her by adopting the features described above.

**Neuroscientific Understanding of Laborland**

Among birth professionals and researchers, laborland is often described in vague neuroscientific terms, often exploiting the dichotomy between forebrain and hindbrain (**cite?**), left brain and right brain (England & Horowitz, 1998), or neocortex and primitive brain (Odent, 2002; Parratt, 2002). While there is some validity in thinking in these terms, a closer look is required. The most common way of describing laborland in brain terms is the neocortex vs. primitive, hindbrain distinction. The neocortex is taken to represent all that prevents one from entering laborland (a cognitive, rational response) while the hindbrain assumes the role of regulating bodily, instinctual behavior (Odent, 2002). In order to better understand labor in neuroscientific terms, let us examine the fundamental role of hormones in birth physiology. The complex and fragile hormonal balance that regulates labor is a pivotal aspect of childbirth. These hormones are secreted from the “old, primitive brain structures,” the hypothalamus and the pituitary gland (Odent, 2002, p. 87); the primary hormones at work during labor are oxytocin, endorphins, and adrenaline (Odent, 2002). Oxytocin

Oxytocin

* mechanical effects: uterine contractions; placenta delivery; during lactation, milk ejection (letdown reflex) (Odent, 2002; About Oxytocin, 2008)
* “Oxytocin secreted from the pituitary gland cannot re-enter the brain because of the blood-brain barrier…the behavioral effects of oxytocin are thought to reflect release from centrally projecting oxytocin neurons, different from those that project to the pituitary gland. Oxytocin receptors are expressed by neurons in many parts of the brain” (“About Oxytocin,” 2008).
  + hormone + neurotransmitter
* behavioral effects: love hormone; mother-baby bonding (critical period when mother and baby are in the same hormonal state); maternal instincts (Odent, 2002)
  + increasing trust – reducing fear (“About Oxytocin,” 2008).
  + “In both male and female rats oxytocin exerts potent physiological antistress effects” (Uvnäs-Moberg, 1998).

Endorphins

* endorphins => alpha brain waves – serenity or beatitude (Odent, 1984)
* make natural childbirth possible

Adrenaline

* needed during pushing: makes mother upright, alert (aggressive after birth to defend baby) (Odent, 2002)
  + laborland does not continue into pushing – transition wakes you up and out of your trance (adrenaline required to push the baby out) (England & Horowitz, 1998)

Goals for this section:

-outline the hormones involved and their basic properties

* you need oxytocin to be functioning properly because it makes the birth actually possible and facilitates bonding; you need the endorphins to be functioning properly because they ease the pain and create feelings of euphoria; you don’t want too much adrenaline because that signals to the body to stop laboring and move to safety.

-discuss how these hormones (especially) oxytocin are known to influence brain states 🡪 meditation; spirituality

* “the altered conscious state acts to blur the cognitive perspectives of time and fear” (Parratt & Fahy, 2003, p. 19)
* “alteration of normal sensory boundaries” 🡪 “can change perceptions including that of time so that a feeling of universal wholeness may occur” (Parratt, 2002, p. 12)

-draw parallels to mental-state during laborland

-discuss how adrenaline, if triggered, can inhibit laborland and labor

-transition into disturbances section

* woman needs a “calm, reassuring environment” in order for oxytocin release to work properly (Odent, 1984, p. 14)
* lack of endorphins = distinct, sharp memories (England & Horowitz, 1998)
  + very vivid when retrieved
* with endorphins: “amnesia about the pain and a misty magical memory” (England & Horowitz, 1998, p. 198)
  + softer, focused on inner experience

[[[-in meditation situations, PFC is very important in instigating concentration (because it needs to override the thoughts cluttering the mind to clear the mind of thoughts and instill calm) (McNamara, 2006). This is not the same as laborland because laborland is not about imposing a state of consciousness but rather getting out of the way of a strong physiological process unfolding.]]]

The neocortical/primitive brain dichotomy arises here through claims that, “the instinctual and primal in all animals is directed by the hypothalamus and this needs to be the dominant brain activity in labor,” and that hypothalamic activity is suppressed if the “rational neocortex dominates” (Parratt, 2002, p. 12). Odent (2002) agrees: “when there are inhibitions – during the birth process or during any sort of sexual experience – such inhibitions originate in the ‘new brain’…the brain of the intellect…the neocortex” (p. 87). In situations when the functioning of oxytocin is vital to success, humans’ worst handicap is our large and developed neocortex.

* “This reduction of neocortical activity is the most important aspect of birth physiology” (Odent, 2002, p. 84)
  + 🡪 need to protect from stimulation to neocortex

**When Birth Is Disturbed**

Combining neuroscientific and hormonal knowledge with anecdotal and cultural knowledge, intuitive birth can be a fragile state, easily disrupted by a plethora of distracters: superfluous talking, harsh lighting, an environment that feels unsafe or is lacking intimacy, or perhaps a stand-mixer whirring in the background. These distracters can disrupt the flow of beneficial hormones (oxytocin and endorphins) and stimulate unhelpful ones (adrenaline). Blix (2011) provides a comprehensive overview of potential disturbances during labor. Care providers can disrupt women with medical actions like listening to the baby’s heartbeat or vaginal checks for dilation and effacement; other people present at the birth (either relatives, guests, or children) can contribute unwelcome anxiety, insecurity, or discomfort that rubs off on the laboring woman; finally, a woman can disrupt her own labor due to emotional barriers like shyness, a lack of confidence, feeling insecure or unsafe, or feeling compelled to play hostess to the people present (Blix, 2011). Specific environments and circumstances can selectively exacerbate or ameliorate these conditions. Having an undisturbed space and a “sense of peace and calm” can help women maintain their focus and emotional wellbeing (Lindgren & Erlandsson, 2010, p. 312). Midwives can get caught in the fast lane with tasks surrounding the timing, counting, and measuring of labor; this fast will immediately cross-over to the mother and disturb her balance (Browne & Chandra, 2009). Feeling observed or feeling the necessity to fulfill a social role in relation to other people at the birth can enhance the mother’s anxieties and lead to a longer labor (Odent, 1984). Or, a hospital environment and the consequent presence of “intimate strangers” can inhibit a woman’s going into laborland (Cheyney, 2008, p. 263).

The presence of the father at birth is a controversial topic for some due to the increased potential for disturbance. Odent observes that, “men sometimes find it hard to observe, accept, and understand a woman’s instinctive behavior during childbirth. Instead, they often try to keep her from slipping out of a rational, self-controlled state” (Odent, 1984, p. 43). Many men have difficulty keeping a low profile and their protective adrenaline (or just nervous/scared energy) is contagious to the mother (Odent, 2002). Finally, the father is not under the same hormonal influence as the mother and does not know her needs at each stage; therefore, he may behave counter to what is most needed at the moment to promote labor (Odent, 2002).

A similarly contentious topic is the presence of a labor “coach” at the birth. A woman being properly supported to enter laborland in ideal circumstances should not need to be coached (Odent, 2002), which would “[alienate her] from her instinctive core, where the strength and confidence necessary for birthing wait to be tapped” (England & Horowitz, 1998, p. 166). As Odent questions, “how can we ‘coach’ an involuntary process?” (2002, p. 92). Overall, any disturbances during labor increase a woman’s feeling of vulnerability or danger, which will cause an adrenaline rush; security is a necessity (Odent, 2002). [In pursuing a calm, safe, supportive birth environment free from distraction, there is room for the presence of a sympathetic and knowledgeable woman who can aid the midwife in encouraging and maintaining an ideal environment and helping the laboring woman release her inhibitions. For many, this is the role of the doula, a woman invited to be present at the birth specifically to support the mother (and the father) (do I have a citation?). In this capacity she is able to be an ambassador between the mother and the potential distractions in the environment, perhaps negotiating with the hospital staff to dim the lights or asking disruptive guests to leave. If a doula understands the needs of the laboring woman, she can take on the responsibility of guarding the woman’s space, privacy, and concentration.

**Psychological Outcome Measures of Childbirth**

This research is primarily oriented towards how women perceive of their experience rather than what actually occurred at her labor and birth. While the actual events of labor carry their own significance, from a psychological perspective, what becomes far more important is how each woman later perceives her birth and understands her role within it. This is especially important regarding feelings of control. The experiences during labor that lead to each individual woman to report feeling ‘in control’ of her experience or being ‘supported’ can vary drastically depending on how each woman conceptualizes these features (Larkin et al., 2009). What matters most is mothers’ feelings and perceptions and how she processes and moves on from her birth experience – more so than a validity judgment placed upon a particular experience or method. Consequentially, it is possible that this research is only relevant within the community of women oriented towards natural childbirth. If a medically oriented woman experienced laborland or a natural childbirth, she might interpret this experience differently and may rate her outcomes differently. For example, abdicating control to an authority figure can be a way of ‘feeling in control’ for some women (Larking et al., 2009). Being given the opportunity to be fully in control of their labor may be frightening and actually feel out of control. This subjectivity motivates a focus on psychological outcomes rather than medical outcomes because it is ultimately the perception of her birth that a woman will carry with her over the years rather than a precise memory of the experience as it actually happened.

Simkin (1991) provided the groundwork for understanding which psychological outcomes are important in the longterm through her longitudinal study of women’s perceptions of their childbirth experiences both months and years after birth. She identified a few main elements that were associated with positive and negative memories for women and retained long-term significance: feelings of accomplishment, control, self-esteem and self-confidence, and memories of doctor and nurse. Simkin echoes the importance of psychological measures, concluding that, “if particular factors were present, women are more likely to feel long-term

satisfaction. These factors have more to do with the way they conduct themselves and the way they are treated than with the actual clinical features of their labor” (p. 209).

**Research Goals**

Midwifes and obstetricians who have attempted to get a hold of what laborland means have described it as having certain distinctive traits (closed eyes, cannot talk during contractions, etc.), but there is no general consensus on what defines laborland, how it works, or what the most important facilitating factors are. My research aim was to contribute to this knowledge base and move forward a better idea of what laborland is, how it works, and why it’s important. This project researches laborland from a psychological perspective with these questions in mind:what defines laborland?How does laborland relate to other elements of the childbirth experience (ex. level of pain experienced and whether the birth meets a woman’s expectations)? And how do laborland and other elements of childbirth contribute to and interact with each other to influence subjective outcome measures? This research does not seek to objectively validate laborland over other birthing approaches; however, it does hypothesize laborland as a positive contributing factor to birth outcomes.

**Methods**

**Participants**

Participants in this research included 40 prenatal (currently pregnant) and postpartum (recently delivered) women who were planning natural childbirth or who achieved natural childbirth under the care of a midwife. Thirteen women completed the prenatal survey, and 35 completed the postpartum survey. Eight women completed both surveys, leaving 27 women who completed only the postpartum survey. Additionally, five women completed only the prenatal survey because they did not delivery in time to be included in the postpartum sample. Given this small prenatal sample size, I ultimately decided to focus my analysis on the postpartum survey only. The prenatal survey will be briefly discussed but not included in the results section. Postpartum participants ranged from 18 to 39 years and were 97% White/Caucasian (3% Asian). The most common occupation was mother/homemaker (40%) while 60% were employed in various occupations outside the home. 6% completed high school or got their GED; 20% had completed some college; 6% had obtained a 2-year college degree; 46% had obtained a 4-year college degree; 20% had obtained a master’s degree; and 3% had obtained a doctoral degree. All participants carried a single fetus and all participants were currently partnered (marital status was not collected). 31.5% of women gave birth at home, 31.5% at a birth center, and 37% at a hospital. Of the hospital births, only 38% were originally intended to be hospital births (14% of total participants). The other 62% moved from their intended birth location (home or birth center) to the hospital. 11% of these unintended hospital births ended in cesarean section. 62% of the total hospital births involved pain medications (including the cesarean sections) (23% of total participants). The primary motivating factors for choosing out-of-hospital birth (or intending an out-of-hospital birth) were to avoid interventions/medicalization (31.4%), for safety or health reasons (20%), to ensure desired control, choice, or empowerment (20%), or other (14.3%). 14.3% did not choose out-of-hospital birth.

I was not able to exactly measure postpartum intervals (the length of time between *delivery* and taking the survey), but I could determine the interval between each woman’s *due date* and when she completed the survey; it is this that I will call her postpartum interval. Women’s postpartum intervals ranged from 3 days to 510 days. An ideal research design would reach all women within two weeks of delivery to eliminate possible influences of memory; however, this was not possible for me due to time restraints and a limited research scope. I aimed to restrict participants to a four-month (124-day) postpartum interval, but eight women who took the survey were outside this range. Splitting participants into short- and long-postpartum interval groups by this criteria, there was a significant difference in laborland between the these two groups: *t*(33) = -2.37 , *p* = 0.02 (short: *M* = -1.91, *SD* = 8.98) (long: *M* = 6.45, *SD* = 7.97). There were no other significant differences between groups at the α = .05 level. Based on this difference, a conservative approach would be to remove these eight women from the dataset; however, my sample size was not large enough to accept this without losing important power. Therefore, I have left these participants in my dataset; this difference presents a potential problem and will have to be considered carefully in further analyses.

A second concern was regarding the eight women who indicated in their surveys that they had received pain medications during labor or had delivered via cesarean section. There were no significant differences between women who delivered via cesarean section vs. delivered vaginally. However, several differences were found between the women who received pain medications (including the cesareans) and the medication-free women. These differences are shown in Table 1.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Table 1  *Means of Measures for Women Who Received Pain Medications vs. Received No Pain Medications* | | |  | *df*=33 |
|  | Pain Medications | No Pain Medications | *t* | *p* |
| Intuitive Movement | -2.04 | 0.60 | -2.16 | 0.04 \* |
| (2.87) | (3.09) |
| Physical Environment | -2.46 | 0.73 | -2.74 | 0.01 \*\* |
| (3.47) | (2.72) |
| Meeting Expectations | -3.04 | 0.90 | -3.02 | 0.005 \*\* |
| (2.07) | (3.49) |
| Actual Time in Active Labor (hr.) | 9.25 | 5.37 | 2.50 | 0.02 \* |
| (4.33) | (3.72) |
| Perceived Time in Active Labor (hr.) | 9.00 | 3.74 | 3.37 | 0.002 \*\* |
| (5.55) | (3.29) |
| Laborland | -2.53 | 0.75 | -0.87 | 0.39 |
| (9.55) | (9.34) |

*Note:* Standard deviations are in parentheses below the means. \* = p < .05, \*\* = p < .01

The most important finding here is that there is not a significant difference in laborland between these groups. The other differences are to be expected given the potential difference between a home or birth center birth and a hospital birth and the fact that women identifying with natural childbirth was likely not expecting to receive pain medications or a cesarean; they are not necessarily directly attributable to the pain medications. An equally important consideration is that this research concerns the birthing experience not a specific birth outcome. As Odent (2002) emphasizes, a ‘biodynamic’ birth attitude is the topic under consideration, rather than a specific label (‘natural childbirth’) applied to the birth post-hoc: “We do not need to qualify an outcome. We need to qualify an attitude” (p. 105). Women were specifically recruited to the study on the basis of using midwifery services and identifying with the concept of natural childbirth. Thus, while these eight women did not achieve, by definition, a natural childbirth, this does not exclude them from being relevant to the research goals, and their responses were included in the final dataset.

I recruited women to complete my surveys who were either prenatal or postpartum. I recruited prenatal women to complete two surveys; one prenatal and one approximately two weeks postpartum. Already postpartum women were recruited to complete only the postpartum survey. I contacted a number of women via two midwifery practices – a homebirth midwifery practice in Pennington, NJ (Midwifery Care Associates, P.C.) and a birth center in Chapel Hill, NC (Women’s Birth and Wellness Center). Prenatal women in the homebirth practice received a recruiting letter from their midwife in person and by email. Prenatal and postpartum women in the birth center practice were contacted via a website with an electronic version of this recruitment letter posted to the practice’s facebook page. I contacted a number of other prenatal and postpartum women via word of mouth using social networking. If a woman was interested in participating, she contacted me via email or via a contact form on the recruitment website. I then sent her a unique link to the survey. I screened participants based on postpartum interval if this information was offered by the woman – I only invited women who were under four months postpartum. However, many women did not volunteer this information, so a number of survey respondents had longer postpartum intervals. Of the 48 women who contacted me to express their interest in the postpartum survey (including eight who had already taken the prenatal survey), I screened out 10 for having an extended postpartum interval and sent 38 invitations. The response rate for the postpartum survey was 92%.

Women who participated were entered into a drawing for two $50 Amazon.com gift cards. One gift card was randomly awarded among the 32 women who answered only one survey (prenatal or postpartum); the second gift card was randomly awarded among the eight women who completed both the prenatal and postpartum surveys.

**Materials**

I constructed two surveys to probe women’s expectations, perceptions, and outcomes relating to natural childbirth. Both surveys began with a consent form and confirmation that the respondent was over 18 years of age. The prenatal survey was 101 questions long and consisted of demographic questions, the positive and negative affect schedule, PANAS **need more info: what it is and that it’s standardized**, with a general time instruction (Watson, Clark, & Tellegen, 1988), the woman’s expectations for her birth experience, and her partner’s expectations for the birth experience (‘partner’ could mean a romantic partner or a birth partner). See Appendix A for the complete prenatal survey.

The postpartum survey was 156 questions long and also included demographic questions and the PANAS (Watson, Clark, & Tellegen, 1988). In addition, it included factual questions about the birth (ex. how long did labor take, where did you give birth, etc.) and subjective questions about the woman’s experience and perception of the labor and birth and several outcome measures. The postpartum survey concluded with a list of postpartum resources that may be of help to the woman. The complete postpartum survey is in Appendix B.

* talk about motivation for different questions & specific hypotheses relating to these questions?

Materials Notes

* **what’s the main takeaway?**
* what does each theme mean (what sort of questions does it compile?)
* include question tables in the text?
* which questions were removed from each theme because they didn’t correlate?
* discuss response options used (were they clearly detailed?)
* where did the questions come from (theoretically)?
* why were these specific questions included and no others?
* say all questions were required to answer
* discuss potential problems with self-report
  + respond that I included inverted questions to encourage thoughtful completion (instead of filling in the same number all the way down)
  + also, I can trust women to have taken the survey seriously because the main compensation promised was the personal satisfaction of having participated – natural childbirth is a topic that women and mothers are often very passionate about, and the response I got from women was very enthusiastic.
* discuss word choice (tried to use vocabulary that was generated by the midwives and researchers – screened the survey by several women who had recently (or distantly) had a natural childbirth to check for interpretability and clear wording – woman-sensitive language.

Simkin’s (1991) findings on outcomes of childbirth form the basis of my outcome measures.

-feelings of accomplishment, control, self-esteem and self-confidence, and memories of doctor and nurse-

Accomplishment and self-esteem are assessed directly; autonomy and control demand a more nuanced approach. I specifically assess these by posing three statements with a [strongly disagree 🡪 strongly agree] rating scale: “I felt in control of my own behavior,” “I felt in control of the care I received,” and “I was involved in all decision-making processes (especially regarding interventions).”Memories of the care providers are incorporated in the question of being in control of care received. Other aspects of women’s memories of their care providers are assessed independently in the survey.

-direct and indirect assessment of laborland

-drew inspiration from the themes presented above, assessing laborland through behavioral, emotional, and psychological means. The questions in the main body of the survey can be broken down into \_\_ groups:

**Data Analysis and Measures**

Surveys were collected online through the Qualtrics.com interface. Data was downloaded and inputted into R for data analysis.

This research investigated the relationships between different measures of childbirth – laborland, outcome measures, etc. – so it was first necessary to develop scales to measure these constructs. To begin, I inverted all of the responses to the negative questions (ex. “I "lost spirit" at some point during the labor” or “My labor pain felt like suffering”) so that they matched the directionality of the positive questions (ex. “I felt safe in my surroundings”). These negative, inverted questions are marked with an “INV – “ at the beginning of each question. Then, to increase interpretability I recoded all of the survey questions so that a low score (1) represented the least favorable response and a high score (5, if on a 5-point scale) represented the most favorable response. For questions that had no clear value attached to any response (like the demographic questions), responses were left in their original direction. Ten questions were discarded due to poor variance, determined if 25 or more women provided the same response: P035, P040, P045, P053, P054, P055, P056, P068, P069, and P077.

In order to assess my hypotheses, I created scaled composite scores from the postpartum survey data. To create a score to measure how much each woman entered laborland, I selected the questions that, based on the research presented already, could be considered definitional of laborland. The goal was to identify questions that were not just contributing factors, but rather concepts that, if a woman did not experience it, she could be said to not be in laborland.

*Insert table with all the original questions and their r values?*

I similarly sorted my survey questions into thematic groups. Intuitive Movement collected the questions regarding women’s trust of their instinct during labor, specifically if they felt uninhibited in their behavior, moved around the room, and trusted their bodies to lead them through labor. Physical Environment includes questions about the birth environment like lighting, surroundings, and people present. Emotional Environment includes questions about each woman’s emotional support from her midwife and her partner and her ability to be relaxed and herself. Fluid Reality collects questions about the woman’s state of mind, assessing trance-like qualities and her ability to disengage from her environment. Intense Presence encompasses questions on the concentration and mindfulness of the laboring woman. Meeting Expectations assess whether the woman behaved during labor as she expected. Memory Quality collects the questions on whether women’s memories of the birth experience or fluid and vague or sharp and vivid. Finally, Vocalization compiles the questions on whether women vocalized freely during their labor. Additionally, Pain Management and Outcome Measures scores were created. Pain Management collected questions on how women perceived and coped with their pain (as suffering or as productive) and how intense it was. Did she accept her pain and travel through it or did she resist it, increasing her suffering? Outcome Measures included questions on women’s satisfaction wither their birth experience and their perceptions of control. These themes were chosen as representing underlying variables in how laborland is conceived. Finding strong correlations between laborland and many of the other themes indicated that questions within these other themes might actually be measuring aspects of laborland. In order to employ a data-driven approach to assigning questions into themes, I created a subset of questions that included all of the “state questions” – those that assessed the mental or physical state of each woman while in labor. This excluded her expectations, generally held beliefs, or later outcomes. Pain management questions were also excluded from this subset. This subset was chosen because laborland is by definition a state that the woman enters during labor, so its components must be restricted temporally to exclude any questions that address pre-labor beliefs or post-labor outcomes. I then ran an exploratory factor analysis on this subset to see which themes arose naturally based on question correlations. Inspection of the eigenvalues and the scree plot showed that there was a drop-off in the eigenvalues after the fifth factor; thus, five factors were extracted from the analysis. [report table of loadings??] One of the five factors included many of the questions assigned to my laborland theme along with questions from other themes. The items that loaded onto this factor became the new laborland score. From this set, I further removed one question (P073) because it negatively correlated with the composite score and added no explanatory value and two questions (P049 and P069) because their correlation with the laborland composite score was not significant at an α=.10 level. Table 2 includes the final components of laborland and their correlations with the composite score. Five questions were removed from the laborland score because they did not load onto the new laborland factor: P071: “I concentrated fully on my contractions,” P072: “I could not speak during contractions,” P079: “INV - I approached my labor through conscious reasoning and/or rationality,” P132: “I was in my own little world,” and P146: “I was oblivious to the world beyond my immediate environment.”

|  |  |  |  |
| --- | --- | --- | --- |
| Table 2  *Within-scale Correlations for Laborland* | | *df*=33 |  |
|  |  | *r* | *p-adjusted* |
| P080 | INV - I tried to problem solve or think my way through labor b | .54 | 0.069 . |
| P085 | I was being guided by a sense of "knowing" a | .71 | <.001 \*\*\* |
| P086 | My behavior was intuitive rather than rational a | .68 | <.001 \*\*\* |
| P089 | I relinquished rational control of myself and listened to my body a | .79 | <.001 \*\*\* |
| P093 | I was aware of cues from my body a | .72 | <.001 \*\*\* |
| P094 | I listened to the cues from my body a | .89 | <.001 \*\*\* |
| P101 | My baby and I were partners, working together a | .77 | <.001 \*\*\* |
| P107 | INV - I changed positions only when somebody told me to b | .65 | 0.002 \*\* |
| P108 | I paid attention to the sensations in my body a | .62 | 0.006 \*\* |
| P115 | I moved around based on my intuitive knowledge of how to birth a | .55 | 0.05 \* |
| P123 | My partner and I seemed to be the only ones in the room a | .56 | 0.04 \* |
| P127 | INV - I needed to be coached to give birth successfully b | .62 | 0.006 \*\* |
| P130 | INV - I was following directions for what to do b | .65 | 0.002 \*\* |
| P136 | Everyone at my birth was following my lead a | .61 | 0.009 \*\* |

*Note:* a Response options: 1=Strongly Disagree 🡪 5=Strongly Agree. b Response options: 1=Strongly Agree 🡪 5=Strongly Disagree; . = p < .10, \* = p < .05, \*\* = p < .01, \*\*\* = p < .001

Taking this new laborland score into account, I coded the rest of the themes so that there was no overlap among themes. Then, I applied the same significance standard to all the themes such that each question correlated with its theme composite score at an α=.10 level. Table 3 includes the questions in the Pain Management construct and their correlations with the composite score. The same is shown for Outcome Measures in Table 4.

|  |  |  |  |
| --- | --- | --- | --- |
| Table 3  *Within-scale Correlations for Pain Management* | | *df*=33 |  |
|  |  | *r* | *p-adjusted* |
| P124 | INV - My labor pain felt like suffering b | .88 | <.001 \*\*\* |
| P131 | I traveled through my labor pain a | .49 | 0.04 \* |
| P133 | I coped well with the pain of labor a | .89 | <.001 \*\*\* |
| P142 | INV - I was helpless against the strength of my labor pain b | .75 | <.001 \*\*\* |
| P145 | I accepted my labor pain a | .66 | <.001 \*\*\* |
| P148 | INV - I dreaded the coming of each contraction b | .77 | <.001 \*\*\* |
| P155 | How intense was your labor pain during active labor (4cm or more dilated)? c | .60 | 0.003 \*\* |
| P156 | How intense was your labor pain during pushing? c | .70 | <.001 \*\*\* |

*Note:* a Response options: 1=Strongly Disagree 🡪 5=Strongly Agree. b Response options: 1=Strongly Agree 🡪 5=Strongly Disagree; c Response options: 1=Worst Pain I Can Imagine, 2=Severe/Overwhelming, 3=Intense, 4=Moderate/Discomforting, 5=Mild, 6=No Pain; . = p < .10, \* = p < .05, \*\* = p < .01, \*\*\* = p < .001

|  |  |  |  |
| --- | --- | --- | --- |
| Table 4  *Within-scale Correlations for Outcome Measures* | | *df*=33 |  |
|  |  | *r* | *p-adjusted* |
| P065 | I felt in control of my own behavior a | .74 | <.001 \*\*\* |
| P066 | I felt in control of the care I received a | .60 | 0.002 \*\* |
| P122 | I was involved in all decision-making processes (especially regarding interventions) a | .68 | <.001 \*\*\* |
| P149 | INV - As a result of my childbirth experience, my self-confidence \_\_\_\_\_\_\_\_\_ b | .87 | <.001 \*\*\* |
| P150 | My labor and delivery experience was \_\_\_\_\_\_\_\_\_\_ c | .80 | <.001 \*\*\* |
| P151 | I felt my labor was a \_\_\_\_\_\_\_ experience d | .70 | <.001 \*\*\* |

*Note:* a Response options: 1=Strongly Disagree 🡪 5=Strongly Agree. b Response options: 1=Greatly Decreased 🡪 5=Greatly Increased; c Response Options: 1=Much Worse than Expected 🡪 5=Much Better than Expected; d Response Options: 1=Very Negative 🡪 5=Very Positive; . = p < .10, \* = p < .05, \*\* = p < .01, \*\*\* = p < .001

See Tables A-H for the questions assigned to each of the rest of the themes and their correlations with the theme composite score. This process left 76 questions [in themes and 23 questions without a theme.]

A Personality Affect composite score was created from the 20 PANAS questions included in the postpartum survey. All the negative affect traits had already been inverted, so a scaled sum was computed. As indicated above, three traits (P035: Hostile, P040: Ashamed, and P045: Jittery) were not included in this composite score because a large majority of participants (25 or more) gave the same response. A high score on the Personality Affect scale indicated a more positive affect while a low score indicated a more negative affect. Questions were not subjected to an α=.10 cut-off because these questions come from an established and validated scale construction.

To assess women’s perception of the time spent during labor compared to how long they actually spent in labor, I created a time difference score. Response options for time spent in active labor (4” or more dilated) were 0-2 hours, 2-4 hours, 4-6 hours, 6-8 hours, 8-10 hours, 10-12 hours, and more than 12 hours. These were recoded as 1, 3, 5, 7, 9, 11, and 13 hours respectively. Response intervals for time spent pushing were 0-19 minutes, 20-39 minutes, 40-59 minutes, 60-79 minutes, 80-99 minutes, 100-120 minutes, and more than 2 hours and were recoded as 10, 30, 50, 70, 90, 110, and 130 minutes respectively. Difference scores were then computed by subtracting perceived time from actual time for both active labor and pushing.

**Results**

(use past tense to discuss results)

**Correlations between Measures**

For all statistical tests, α = .05 unless otherwise indicated. Table 5 displays the correlations of each composite themes with Outcome Measures. All correlations are significant except for Meeting Expectations, Vocalization, Memory Quality, and Personality Affect.

|  |  |  |
| --- | --- | --- |
| Table 5  *Correlation of Themes with Outcome Measures* | | *df*=33 |
|  | *r* | *p-adjusted* |
| Laborland | .63 | 0.003 \*\* |
| Pain Management | .76 | <.001 \*\*\* |
| Intuitive Movement | .70 | <.001 \*\*\* |
| Physical Environment | .55 | 0.03 \* |
| Emotional Environment | .73 | <.001 \*\*\* |
| Fluid Reality | .55 | 0.03 \* |
| Intense Presence | .54 | 0.04 \* |
| Meeting Expectations | .48 | 0.13 |
| Vocalization | .03 | 1.00 |
| Memory Quality | .11 | 1.00 |
| Personality Affect | .42 | 0.42 |

*Note:* . = p < .10, \* = p < .05, \*\* = p < .01, \*\*\* = p < .001

Table 6 includes the correlations between all measures and Laborland. Only Intuitive Movement and Emotional Environment are significantly correlated with Laborland. Pain Management has a marginally significant correlation.

|  |  |  |
| --- | --- | --- |
| Table 6  *Correlation of Themes with Laborland* | | *df*=33 |
|  | *r* | *p-adjusted* |
| Pain Management | .52 | 0.06 . |
| Intuitive Movement | .58 | 0.013 \* |
| Physical Environment | .23 | 1.00 |
| Emotional Environment | .59 | 0.01 \*\* |
| Fluid Reality | .42 | 0.39 |
| Intense Presence | .47 | 0.15 |
| Meeting Expectations | .33 | 1.00 |
| Vocalization | .08 | 1.00 |
| Memory Quality | .03 | 1.00 |
| Personality Affect | .38 | 0.69 |

*Note:* . = p < .10, \* = p < .05, \*\* = p < .01, \*\*\* = p < .001

**Comparing Doula with No Doula**

No significant differences were found between women who had a doula and women who did not (P026). There was a non-significant trend that women who had doulas had poorer scores on Laborland, Pain Management, and Outcome Measures.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Table 7  *Means of Central Measures for Women Who Did and Did Not Use a Doula* | | | | *df*=33 |
|  | Doula | No Doula | *t* | *p* |
| Laborland | -2.43 | 0.97 | -0.97 | 0.34 |
| (9.72) | (9.23) |
| Pain Management | -0.58 | 0.23 | -0.37 | 0.71 |
| (6.60) | (5.50) |
| Outcome Measures | -1.73 | 0.69 | -1.50 | 0.14 |
| (3.88) | (4.45) |

*Note:* Standard deviations are in parentheses below the means.

**Breaking Down Outcome Measures**

Table 5 shows that Laborland was significantly correlated with Outcome Measures. Table 8 breaks down Outcome Measures by each component question to see which aspects of Outcome or individually correlated with Laborland. Laborland significantly correlated with feeling in control of one’s own behavior, self-confidence, and a whether the delivery experience was better or worse than expected. The correlation between Laborland and whether labor was a positive or negative experience was marginally significant.

|  |  |  |
| --- | --- | --- |
| Table 8  *Correlations of Laborland with Individual Outcome Measures Questions* | | *df*=33 |
|  | *r* | *p-adjusted* |
| P065: I felt in control of my own behavior a | .55 | 0.01 \*\* |
| P066: I felt in control of the care I received a | .38 | 0.23 |
| P122: I was involved in all decision-making processes (especially regarding interventions) a | .31 | 0.34 |
| P149: INV - As a result of my childbirth experience, my self-confidence \_\_\_\_\_\_\_\_\_ b | .53 | 0.02 \* |
| P150: My labor and delivery experience was \_\_\_\_\_\_\_\_\_\_ c | .53 | 0.02 \* |
| P151: I felt my labor was a \_\_\_\_\_\_\_ experience d | .46 | 0.07 . |

*Note:* a Response options: 1=Strongly Disagree 🡪 5=Strongly Agree. b Response options: 1=Greatly Decreased 🡪 5=Greatly Increased; c Response Options: 1=Much Worse than Expected 🡪 5=Much Better than Expected; d Response Options: 1=Very Negative 🡪 5=Very Positive; . = p < .10, \* = p < .05, \*\* = p < .01, \*\*\* = p < .001

**Time Spent in Labor and Pushing**

Correlations between Laborland and different measures of the time spent in active labor and pushing are shown in Table 9. None of these correlations are significant. However, actual time spent in active labor is strongly correlated with perceived time spent in active labor, *r*(33) = .87, *p* < .001, and actual time spent pushing is strongly correlated with perceived time spent pushing, *r*(33) = .80, *p* < .001.

|  |  |  |
| --- | --- | --- |
| Table 9  *Correlations of Laborland with Time Measures* | | *df*=33 |
|  | *r* | *p-adjusted* |
| Actual Time Spent in Active Labor | -0.37 | 0.82 |
| Perceived Time Spent in Active Labor | -0.27 | 1.00 |
| Difference between Actual and Perceived Time in Active Labor | -0.09 | 1.00 |
| Actual Time Spent Pushing | -0.17 | 1.00 |
| Perceived Time Spent Pushing | -0.26 | 1.00 |
| Difference between Actual and Perceived Time Pushing | 0.13 | 1.00 |

*Note:* . = p < .10, \* = p < .05, \*\* = p < .01, \*\*\* = p < .001

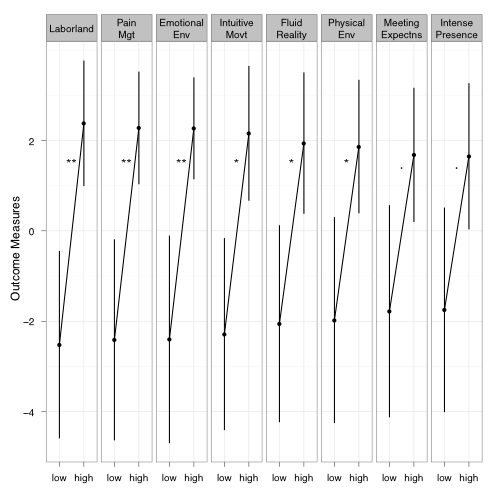
**Median Split Analysis**

To investigate if any other variables interacted with the relationship between Laborland and Outcome Measures, I split all of my themes by the median into low and high groups. Additionally, I split other variables of interest into two groups either by the median or by another criteria – whichever produced the closest to two equal groups: level of education was split into <4-year college degree and >4-year college degree earned; age was split into <30 and >30 years old; number of previous pregnancies was split into primiparous (zero previous pregnancies) and multiparious (one or more previous pregnancies); income was split into <$50,000 and >$50,000; time of delivery relative to due date was split into on/before the due date and after the due date (post-date); finally, time actually spent in active labor and perceived time spent in active labor were split into <6 hours v. >6 hours and <4 hours v. >4 hours, respectively.

First, median split analysis confirmed the correlations observed in Tables 5 and 6. Figure 1 displays the mean Outcome Measures for the low and high groups of median-split variables (see Table J).

Figure 1

*TITLE*

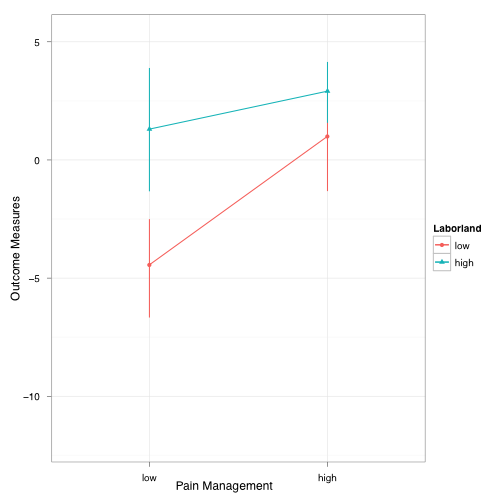


*Note:* . = p < .10, \* = p < .05, \*\* = p < .01, \*\*\* = p < .001

Then multiple median-split variables were tested to see if there was an interaction with median-split Laborland for Outcome Measures. A pattern emerged among many of the variables, shown in Figure 1 with Pain Management, Laborland, and Outcome Measures. Median splits of Pain Management, Personality Affect, Meeting Expectations, and Education all showed this interaction with Laborland. Additionally, so did using a birth plan (P027), having people present at the birth besides your partner and care providers (P051), and both actual and perceived time spent in active labor. However, only three of these interactions were significant when tested with a two-way ANOVA – P051: *F*(1,34) = 4.23, *p* = 0.05; Actual time spent in active labor: *F*(1,34) = 4.22, *p* = 0.05; Perceived time spent in active labor: *F*(1,34) = 5.49, *p* = 0.03. A fourth was marginally significant – *F*(1,34) = 3.57, *p* = 0.07.

Figure 1

*TITLE*



Because of the prevalence of this pattern and the limited power of my sample size, I further explored this using the Tukey Honest Significant Difference test to individually compare each level of the interaction effect. For each of these eight interactions, the same pattern was observed. Table 10 confirms the observed pattern. It shows that within low Pain Management, Personality Affect, etc., there is a significant difference in Outcome Measures between low Laborland and high Laborland. There is no significant difference in Outcome Measures between low and high Laborland within high Pain Management, Personality Affect, etc.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Table 10  *Tukey HSD Comparison for Outcome Measures* | | |  |  |  | |
| Outcome Measures |  | Laborland | |  | 95% Confidence Interval | |
|  | Low | High | Mean Difference | Lower Bound | Upper Bound |
| Pain Management | Low | -4.44 | 1.31 | -5.74 \* | -10.16 | -1.32 |
| (3.82) | (3.79) |
| High | 1.00 | 2.91 | -1.91 | -6.26 | 2.44 |
| (2.82) | (2.36) |
|  |  |  |  |  |  |  |
| Personality Affect | Low | -3.51 | 2.60 | -6.11 \* | -11.14 | -1.08 |
| (4.50) | (1.91) |
| High | -0.70 | 2.27 | -2.96 | -7.92 | 1.99 |
| (3.68) | (3.37) |
|  |  |  |  |  |  |  |
| Meeting Expectations | Low | -3.96 | 2.24 | -6.21 \*\* | -11.02 | -1.40 |
| (4.41) | (2.84) |
| High | 0.14 | 2.45 | -2.30 | -7.04 | 2.44 |
| (2.82) | (3.06) |
|  |  |  |  |  |  |  |
| Education | <4-year college | -4.58 | 3.50 | -8.08 \* | -14.47 | -1.69 |
| (4.46) | (1.20) |
| >4-year college | -0.68 | 2.15 | -2.84 | -6.82 | 1.14 |
| (3.49) | (3.12) |
|  |  |  |  |  |  |  |
| Did you rely on a birth plan during your labor and birth? (P027) | Yes | -4.50 | 3.20 | -7.70 \*\* | -13.31 | -2.10 |
| (3.88) | (2.13) |
| No | -1.69 | 1.72 | -3.41 | -7.62 | 0.80 |
| (4.40) | (3.36) |
|  |  |  |  |  |  |  |
| Were there people present at your labor and birth besides you, your partner, and your care providers? (P051) | Yes | -3.17 | 3.71 | -6.87 \*\*\* | -11.05 | -2.70 |
| (4.67) | (1.68) |
| No | -1.59 | 0.29 | -1.88 | -6.98 | 3.23 |
| (3.97) | (3.29) |
|  |  |  |  |  |  |  |
| Actual Time Spent in Active Labor | <6 hrs. | -0.51 | 1.82 | -2.33 | -6.88 | 2.22 |
| (3.48) | (3.29) |
| >6 hrs | -3.92 | 3.49 | -7.41 \*\* | -12.35 | -2.47 |
| (4.47) | (1.64) |
|  |  |  |  |  |  |  |
| Perceived Time Spent in Active Labor | <4 hrs. | -0.78 | 1.81 | -2.59 | -6.75 | 1.57 |
| (3.35) | (3.54) |
| >4 hrs. | -4.99 | 3.09 | -8.08 \*\*\* | -12.90 | -3.27 |
| (4.60) | (1.83) |

*Note:* Standard deviations are in parentheses below the means; . = p < .10, \* = p < .05, \*\* = p < .01, \*\*\* = p < .001

**Multiple Linear Regression**

To further investigate the relationships between these variables, I conducted a step-wise multiple regression analysis in both directions. The model returned included only Pain Management and Laborland, showed in Table 11.

|  |  |  |  |
| --- | --- | --- | --- |
| Table 11  *Multiple Regression Analyses for Variables Predicting Outcome Measures* | | | *df* = 32 |
|  | *B* | *SE B* | *β* |
| Pain Management |  | 0.09 | .45 \*\*\* |
| Laborland |  | 0.06 | .15 \* |
| R2 | .65 | | |
| F | 30.13 \*\*\* | | |

*Note:* . = p < .10, \* = p < .05, \*\* = p < .01, \*\*\* = p < .001

**Partial Correlation**

The multiple regression model indicated that Pain Management was the largest contributor to Outcome Measures with Laborland the second contributor. A partial correlation analysis investigated the unique contribution of Laborland. Partial correlation coefficients were calculated to control for the contribution of Pain Management to Laborland and Outcome Measures. Laborland and Outcome Measures were significantly correlated even when the contribution of Pain Management was partialled out.  *r*(33) = .63, *p* = 0.003; *partial* *r*(33) = .42, *p* = 0.01.

**Discussion**

(use present tense to discuss conclusions)

\*meaning of laborLand score

-specifically need to discuss what did and did not make it into the score/what did or did not correlate (ex. birthsong did not sig. correlate with laborland 🡪 it likely helps some women but it shouldn’t be in the definition…i.e. you can be in laborland yet absolutely silent); very few themes correlate with laborland (only intuitMov and emotEnv)

\*discuss the various themes/factors that correlate with outcomeMeasures or that have sig. diff. outcomeMeasures scores in their low and high categories.

-vocalization isn’t actually important on it’s own…? (not sig. with any themes (using

median splits)

\*occurance of this pattern of significance in a number of different interactions. Suggests that when you have favorable circumstances (being in the high group for ex. pain experience, panas, or expectations), being in high vs. low laborLand does not change your outcomeMeasures significantly. However, if you’re in the low group on each variable, if you are also in high laborLand your outcomeMeasures are significantly higher than if you’re in low laborLand. Implicates laborLand as having a very important mediating effect between the variables that shape your laboring experience and your outcome measures.

\*not sure exactly where my results will end up going from here…

Limitations

-halo effect (Larkin et al., 2009)

* surveying women too soon after the birth of a healthy baby could see the “halo effect” (negative emotions/experiences could be out of mind or actively denied) (Larking et al., 2009)

-no uniform interval between birth and survey (or between survey and birth for prenatal responses). Runs into issues of memory & halo effect.

-did find significant difference in laborland (only laborland) comparing short v. long pp interval.

* “satisfaction” is an “ambiguous, ill-defined” term/concept (54); however, there’s not much for alternatives, so it is still used extensively (Larkin et al., 2009)
* “a person’s ‘in-the-moment’ experiential reality is different to the reality that the person ascribes to that experience once they have thought about it and put it into words” (Parratt & Fahy, 2008, p. 38)

Conclusion??

* the factors included in laborLand aren’t controversial – they would be positive additions to any birth at any location within any philosophy (most themes correlate positively with outcome measures).
* the sorts of things that Odent talks about with hormones and bonding are more objective. If laborLand just means getting out of the way of your hormones so they can exert their full influence, then laborLand can be seen as a cog in this very important wheel – this can be where some neuroscience gets drawn in.
* “the lesson that should be taken from this is that much more is involved in the outcomes of “a healthy mother and a healthy baby” than coming out of it alive with no permanent physical damage. The potential for psychological benefits or damage is present at every birth” (Simkin, 1991, p. 210).

Future directions

-these results are only exploratory – indicate that there are interesting factors at play and that laborland is a legitimate topic to cover.

-questions and scales need to be further tested for legitimacy and external validity

\*one way to do this would be to conduct interviews with women to see exactly how they

describe their experiences; goal is to create items that are relevant to the women’s experiences (and are interpreted as expected).

\*subjective questions can mean subjective interpretations

-further solidify an understanding of laborland that can be used operationally to further explore this phenomenon

-more comprehensive study to look into prenatal expectations and how this affect laborland and outcome measures.

-ask women at multiple intervals after the birth about outcome measures and about pain experience to lessen subjection to halo effect (but would want to ask about physical and emotional details asap because these are better remembered soon after birth? Would these be subject to halo effect too? not physical details but perhaps the more fluid reality questions?)

-is laborland something you fall into or is it something you strive for?

* use matched surveys to answer this – did women who expected to have a natural/intuitive birth have better success achieving laborland or did expectations before the birth not really matter?

-this research deals with subjective outcomes, but the physiology of laborland clearly suggests that there are objective outcomes as well.

* ex. postpartum “blues” caused by hormonal imbalance -> natural childbirth with all possible hormones reduces chance (Odent, 1984).
* role of oxytocin in labor is vital because its presence is also needed after the birth to birth the placenta w/o hemmorage and to bond with the baby (Odent, 2002)

Our birth culture in the united states has shifted dramatically from how women gave birth in primitive times. While this shift involves vital medical advances that save mothers’ and babies’ lives everyday, it has brought with it vast changes to how we perceive the labor process and what we believe is possible. I hope that my research here will be a small drop in the bucket towards better understanding the factors that contribute to positive, healthy birthing and healthy mothers.

References

Blix, E. (2011). Avoiding disturbance: Midwifery practice in home birth settings in Norway.

*Midwifery, 27*(5), 687-692.

Browne, J., & Chandra, A. (2009). Slow midwifery. *Women and Birth, 22*(1), 29-33.

Cheyney, M. J. (2008). Homebirth as systems-challenging praxis: Knowledge, power, and

intimacy in the birthplace. *Qualitative Health Research, 18*(2), 254-267.

England, P., & Horowitz, R. (1998). Birthing from within: An extra-ordinary guide to childbirth

preparation. Albuquerque, N.M.: Partera Press.

Gaskin, I. M. (2011). Birth Matters: A Midwife's Manifesta. New York, N.Y.: Seven Stories

Press.

Larkin, P., Begley, C. M., & Devane, D. (2009). Women's experiences of labour and birth: An

evolutionary concept analysis. *Midwifery, 25*(2), 49-59.

Lindgren, H., & Erlandsson, K. (2010). Women's experiences of empowerment in a planned

home birth: A Swedish population-based study. *BIRTH, 37*(4), 309-317.

Odent, M. (1984). Birth reborn. New York, N.Y.: Pantheon.

Odent, M. (2002). The farmer and the obstetrician. London, England: Free Association Books.

Parratt, J. (2002). The impact of childbirth on women's sense of self: A review of the literature.

*The Australian Journal of Midwifery, 15*(4), 10-16.

Parratt, J., & Fahy, K. (2003). Trusting enough to be out of control: a pilot study of women's

sense of self during childbirth. *Australian Midwifery, 16*(1), 15-22.

Parratt, J. A., & Fahy, K. M. (2008). Including the nonrational is sensible midwifery. *Women*

*and Birth, 21*(1), 37-42.

Simkin, P. (1991). Just another day in a woman's life? Women's long-term percpetions of their

first birth experience. Part I. *BIRTH, 18*(4), 203-210.

Uvnäs-Moberg, K. (1998). Oxytocin may mediate the benefits of positive social interaction and

emotions. *Psychoneuroendocrinology, 23*(8), 819–835.

Waldenström, U. (2003). Women's memory of childbirth at two months and one year after the

birth. *BIRTH, 30*(4), 248-254.

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures

of positive and negative affect: The PANAS Scales. *Journal of Personality and Social Psychology, 47*, 1063–1070.

World. (2012). *The World Factbook*. Retrieved from

https://www.cia.gov/library/publications/the-world-factbook/geos/xx.html

About Oxytocin. (2008). *Psych Central*. Retrieved from http://psychcentral.com/lib/2008/about-

oxytocin/

Tables

|  |  |  |  |
| --- | --- | --- | --- |
| Table A  *Within-scale Correlations for Intuitive Movement* | | *df*=33 |  |
|  |  | *r* | *p-adjusted* |
| P087 | I felt uninhibited a | 0.68 | <.001 \*\*\* |
| P100 | I believe that my body holds the wisdom to give birth on its own a | 0.73 | <.001 \*\*\* |
| P106 | INV - I felt inhibited in my movement during labor b | 0.65 | <.001 \*\*\* |
| P112 | I moved around the room a | 0.50 | 0.02 \* |
| P121 | INV - I tried to escape the sensations in my body b | 0.64 | <.001 \*\*\* |

*Note:* a Response options: 1=Strongly Disagree 🡪 5=Strongly Agree. b Response options: 1=Strongly Agree 🡪 5=Strongly Disagree; . = p < .10, \* = p < .05, \*\* = p < .01, \*\*\* = p < .001

|  |  |  |  |
| --- | --- | --- | --- |
| Table B  *Within-scale Correlations for Physical Environment* | | *df*=33 |  |
|  |  | *r* | *p-adjusted* |
| P048 | The lighting in my labor and birth environment was dimmed, dark, or off a | 0.70 | <.001 \*\*\* |
| P051 | Were there people present at your labor and birth besides you, your partner, and your care providers c | 0.46 | 0.06 . |
| P083 | My surroundings were calm and comfortable a | 0.71 | <.001 \*\*\* |
| P102 | My birthing environment was comfortable and relaxing a | 0.85 | <.001 \*\*\* |
| P110 | INV - People talked too much b | 0.44 | 0.08 . |

*Note:* a Response options: 1=Strongly Disagree 🡪 5=Strongly Agree. b Response options: 1=Strongly Agree 🡪 5=Strongly Disagree; . = p < .10, \* = p < .05, \*\* = p < .01, \*\*\* = p < .001

|  |  |  |  |
| --- | --- | --- | --- |
| Table C  *Within-scale Correlations for Emotional Environment* | | *df*=33 |  |
|  |  | *r* | *p-adjusted* |
| P063 | My midwife respected my innate knowledge of my birthing process a | 0.55 | 0.03 \* |
| P076 | I felt safe in my surroundings a | 0.59 | 0.009 \*\* |
| P092 | My birth environment was "my turf" and I was in charge of it a | 0.57 | 0.02 \* |
| P095 | I protected by birthing space a | 0.72 | <.001 \*\*\* |
| P097 | INV - I let my partner down b | 0.65 | 0.001 \*\*\* |
| P098 | My partner protected my birthing space during labor a | 0.61 | 0.004 \*\* |
| P109 | I was able to "be myself" a | 0.78 | <.001 \*\*\* |
| P113 | I was relaxed a | 0.75 | <.001 \*\*\* |
| P114 | INV - I let myself down b | 0.55 | 0.02 \* |
| P138 | I felt connected to all the women who have labored and birthed before me a | 0.64 | 0.002 \*\* |

*Note:* a Response options: 1=Strongly Disagree 🡪 5=Strongly Agree. b Response options: 1=Strongly Agree 🡪 5=Strongly Disagree; . = p < .10, \* = p < .05, \*\* = p < .01, \*\*\* = p < .001

|  |  |  |  |
| --- | --- | --- | --- |
| Table D  *Within-scale Correlations for Fluid Reality* | | *df*=33 |  |
|  |  | *r* | *p-adjusted* |
| P126 | INV - Time was an important factor in my labor (timing contractions, timing in between contractions, timing overall labor duration, etc.) b | 0.56 | 0.008 \*\* |
| P132 | I was in my own little world a | 0.67 | <.001 \*\*\* |
| P135 | INV - I was acutely aware of how long my labor was taking b | 0.76 | <.001 \*\*\* |
| P141 | I felt a sense of oneness with the world a | 0.57 | 0.007 \*\* |
| P143 | I lost track of time a | 0.78 | <.001 \*\*\* |
| P144 | Time seemed to slow down or stand still a | 0.59 | 0.004 \*\* |
| P146 | I was oblivious to the world beyond my immediate environment a | 0.74 | <.001 \*\*\* |

*Note:* a Response options: 1=Strongly Disagree 🡪 5=Strongly Agree. b Response options: 1=Strongly Agree 🡪 5=Strongly Disagree; . = p < .10, \* = p < .05, \*\* = p < .01, \*\*\* = p < .001

|  |  |  |  |
| --- | --- | --- | --- |
| Table E  *Within-scale Correlations for Intense Presence* | | *df*=33 |  |
|  |  | *r* | *p-adjusted* |
| P058 | During labor, I focused my attention on my breath c | 0.56 | 0.02 \* |
| P071 | I concentrated fully on my contractions a | 0.68 | <.001 \*\*\* |
| P072 | I could not speak during contractions a | 0.57 | 0.01 \*\* |
| P105 | My attention was focused internally throughout labor a | 0.68 | <.001 \*\*\* |
| P116 | My "mental chatter" disappeared a | 0.63 | 0.002 \*\* |
| P119 | INV - I struggled to find a steady rhythm b | 0.60 | 0.005 \*\* |
| P120 | I gave it "my all" in every moment a | 0.49 | 0.09 . |
| P139 | INV - I found it very difficult to remain relaxed b | 0.76 | <.001 \*\*\* |
| P147 | My actions were purposeful and essential, not frantic or excessive a | 0.66 | <.001 \*\*\* |

*Note:* a Response options: 1=Strongly Disagree 🡪 5=Strongly Agree. b Response options: 1=Strongly Agree 🡪 5=Strongly Disagree; . = p < .10, \* = p < .05, \*\* = p < .01, \*\*\* = p < .001

|  |  |  |  |
| --- | --- | --- | --- |
| Table F  *Within-scale Correlations for Meeting Expectations* | | *df*=33 |  |
|  |  | *r* | *p-adjusted* |
| P067 | In general, my experience of labor and delivery was what I expected a | 0.79 | <.001 \*\*\* |
| P081 | INV - I ended up laboring or pushing in a position (or positions) that I did not plan for b | 0.70 | <.001 \*\*\* |
| P084 | INV - My birth did not go according to my birth plan b | 0.78 | <.001 \*\*\* |
| P088 | I behaved exactly as I expected to a | 0.73 | <.001 \*\*\* |
| P091 | INV - I behaved in ways that surprised me b | 0.60 | 0.001 \*\*\* |

*Note:* a Response options: 1=Strongly Disagree 🡪 5=Strongly Agree. b Response options: 1=Strongly Agree 🡪 5=Strongly Disagree; . = p < .10, \* = p < .05, \*\* = p < .01, \*\*\* = p < .001

|  |  |  |  |
| --- | --- | --- | --- |
| Table G  *Within-scale Correlations for Memory Quality* | | *df*=33 |  |
|  |  | *r* | *p-adjusted* |
| P125 | My memories (now) of my labor are mostly focused on my inner experience a | 0.62 | <.001 \*\*\* |
| P128 | My memories (now) of my labor are vague or fluid a | 0.80 | <.001 \*\*\* |
| P134 | INV - My memories (now) of my labor are very vivid b | 0.86 | <.001 \*\*\* |
| P140 | INV - My memories (now) of my labor are very sharp and detailed b | 0.85 | <.001 \*\*\* |

*Note:* a Response options: 1=Strongly Disagree 🡪 5=Strongly Agree. b Response options: 1=Strongly Agree 🡪 5=Strongly Disagree; . = p < .10, \* = p < .05, \*\* = p < .01, \*\*\* = p < .001

|  |  |  |  |
| --- | --- | --- | --- |
| Table H  *Within-scale Correlations for Vocalization* | | *df*=33 |  |
|  |  | *r* | *p-adjusted* |
| P057 | I vocalized during contractions a | 0.71 | <.001 \*\*\* |
| P099 | INV - I felt inhibited in my noises during labor b | 0.51 | 0.005 \*\* |
| P103 | I made spontaneous noises during contractions a | 0.81 | <.001 \*\*\* |

*Note:* a Response options: 1=Strongly Disagree 🡪 5=Strongly Agree. b Response options: 1=Strongly Agree 🡪 5=Strongly Disagree; . = p < .10, \* = p < .05, \*\* = p < .01, \*\*\* = p < .001

|  |  |  |  |
| --- | --- | --- | --- |
| Table I  *Within-scale Correlations for Personality Affect* | | *df*=33 |  |
|  |  | *r* | *p-adjusted* |
| P028 | Interested a | 0.59 | 0.03 \* |
| P029 | INV - Distressed b | 0.52 | 0.16 |
| P030 | Excited a | 0.73 | <.001 \*\*\* |
| P031 | INV - Upset b | 0.57 | 0.05 \* |
| P032 | Strong a | 0.67 | 0.001 \*\*\* |
| P033 | INV - Guilty b | 0.53 | 0.12 |
| P034 | INV - Scared b | 0.53 | 0.14 |
| P036 | Enthusiastic a | 0.80 | <.001 \*\*\* |
| P037 | Proud a | 0.67 | 0.002 \*\* |
| P038 | INV - Irritable b | 0.28 | 1.00 |
| P039 | Alert a | 0.59 | 0.03 \* |
| P041 | Inspired a | 0.76 | <.001 \*\*\* |
| P042 | INV - Nervous b | 0.40 | 1.00 |
| P043 | Determined a | 0.53 | 0.14 |
| P044 | Attentive a | 0.52 | 0.16 |
| P046 | Active a | 0.70 | <.001 \*\*\* |
| P047 | INV - Afraid b | 0.21 | 1.00 |

*Note:* a Response options: 1=Very Slightly or Not at All, 2=A Little, 3=Moderately, 4=Quite a Bit, 5=Extremely; b Response options: 1=Extremely, 2=Quite a Bit, 3=Moderately, 4=A Little, 5=Very Slightly or Not at All; . = p < .10, \* = p < .05, \*\* = p < .01, \*\*\* = p < .001

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Table J  *Mean Outcome Measures for Low and High Groups of Median-Split Variables* | | | | *df*=33 |
|  | | | | |
| Median-Split Variable | Low Group | High Group | *t* | *p-adjusted* |
| Laborland | -2.52 | 2.38 | -3.95 | 0.004 \*\* |
| (4.34) | (2.90) |
| Intuitive Movement | -2.28 | 2.16 | -3.44 | 0.013 \* |
| (4.44) | (3.12) |
| Physical Environment | -1.97 | 1.86 | -2.85 | 0.05 \* |
| (4.76) | (3.09) |
| Emotional Environment | -2.40 | 2.27 | -3.69 | 0.008 \*\* |
| (4.80) | (2.36) |
| Fluid Reality | -2.05 | 1.94 | -2.99 | 0.04 \* |
| (4.56) | (3.27) |
| Intense Presence | -1.75 | 1.65 | -2.45 | 0.09 . |
| (4.73) | (3.38) |
| Meeting Expectations | -1.78 | 1.68 | -2.51 | 0.09 . |
| (4.91) | (3.11) |
| Pain Management | -2.41 | 2.28 | -3.70 | 0.008 \*\* |
| (4.65) | (2.61) |
| Memory Quality | -0.42 | 0.40 | -0.55 | 0.67 |
| (4.90) | (3.93) |
| Vocalization | -0.79 | 0.66 | -0.98 | 0.67 |
| (4.84) | (3.97) |
| Personality Affect | -1.35 | 1.28 | -1.84 | 0.27 |
| (4.78) | (3.66) |

*Note:* Standard deviations are in parentheses below the means; \* = p < .05, \*\* = p < .01, \*\*\* = p < .001

Appendices

Appendix A. Prenatal Survey

Note: “INV –“ indicates that the question’s response options have been inverted to preserve directionality among all questions.

|  |  |  |
| --- | --- | --- |
| # | Question | Response Type |
| N001 | How many previous full-term pregnancies have you had? | 0 | 1 | 2 | 3 | 4+ |
| N002 | When is your estimated due date? (MM/DD/YYYY) | Formated date response |
| N003 | Is this a single or a multiple pregnancy? | Single | Multiple |
| N004 | Age | 18-24 | 25-29 | 30-34 | 35-39 | 40+ |
| N005 | Occupation | Free Response |
| N006 | Highest educational level achieved | Less Than High School | High School/GED | Some College | 2-Year College Degree | 4-Year College Degree | Master's Degree | Doctoral Degree | Professional Degree (MD, JD) |
| N007 | Are you currently partnered? | Yes | No |
| N008 | Religious affiliation | Protestant Christian | Roman Catholic | Evangelical Christian | Jewish | Muslim | Hindu | Buddhist | Atheist/Nonreligious | Other | Prefer Not to Say |
| N009 | Average household income | Less than $10,000 | $10,000-$50,000 | $50,000-$100,000 | $100,000-$150,000 | More than $150,000 | Prefer Not to Say |
| N010 | Race | White/Caucasian | African American | Hispanic | Asian | Native American | Pacific Islander | Other |
| N011 | How many siblings do you have? | 0 | 1 | 2 | 3 | 4+ |
| N012 | Highest educational level achieved by your mother | Less Than High School | High School/GED | Some College | 2-Year College Degree | 4-Year College Degree | Master's Degree | Doctoral Degree | Professional Degree (MD, JD) |
| N013 | Highest educational level achieved by your father | Less Than High School | High School/GED | Some College | 2-Year College Degree | 4-Year College Degree | Master's Degree | Doctoral Degree | Professional Degree (MD, JD) |
| N014 | What is your primary motivating factor for choosing an out-of-hospital birth? | Free Response |
| N015 | Interested | Very Slightly or Not at All | A Little | Moderately | Quite a Bit | Extremely |
| N016 | Distressed | Very Slightly or Not at All | A Little | Moderately | Quite a Bit | Extremely |
| N017 | Excited | Very Slightly or Not at All | A Little | Moderately | Quite a Bit | Extremely |
| N018 | Upset | Very Slightly or Not at All | A Little | Moderately | Quite a Bit | Extremely |
| N019 | Strong | Very Slightly or Not at All | A Little | Moderately | Quite a Bit | Extremely |
| N020 | Guilty | Very Slightly or Not at All | A Little | Moderately | Quite a Bit | Extremely |
| N021 | Scared | Very Slightly or Not at All | A Little | Moderately | Quite a Bit | Extremely |
| N022 | Hostile | Very Slightly or Not at All | A Little | Moderately | Quite a Bit | Extremely |
| N023 | Enthusiastic | Very Slightly or Not at All | A Little | Moderately | Quite a Bit | Extremely |
| N024 | Proud | Very Slightly or Not at All | A Little | Moderately | Quite a Bit | Extremely |
| N025 | Irritable | Very Slightly or Not at All | A Little | Moderately | Quite a Bit | Extremely |
| N026 | Alert | Very Slightly or Not at All | A Little | Moderately | Quite a Bit | Extremely |
| N027 | Ashamed | Very Slightly or Not at All | A Little | Moderately | Quite a Bit | Extremely |
| N028 | Inspired | Very Slightly or Not at All | A Little | Moderately | Quite a Bit | Extremely |
| N029 | Nervous | Very Slightly or Not at All | A Little | Moderately | Quite a Bit | Extremely |
| N030 | Determined | Very Slightly or Not at All | A Little | Moderately | Quite a Bit | Extremely |
| N031 | Attentive | Very Slightly or Not at All | A Little | Moderately | Quite a Bit | Extremely |
| N032 | Jittery | Very Slightly or Not at All | A Little | Moderately | Quite a Bit | Extremely |
| N033 | Active | Very Slightly or Not at All | A Little | Moderately | Quite a Bit | Extremely |
| N034 | Afraid | Very Slightly or Not at All | A Little | Moderately | Quite a Bit | Extremely |
| N035 | I am afraid that I will let my partner down in labor | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| N036 | I suspect that I will lose control of myself during labor | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| N037 | Having an unmedicated labor and birth is important to me | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| N038 | I expect to use no pain medications during labor | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| N039 | I fear that my birth will not go exactly how I expect | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| N040 | I have an ideal of childbirth that I feel I must attain | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| N041 | I consider myself a highly intuitive woman | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| N042 | It is important to me to remain calm and composed during labor | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| N043 | I fear that people will talk too much during my labor | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| N044 | I fear that my emotions will become overwhelming during labor | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| N045 | I will need to be coached during labor (by a doula, partner, midwife...) in order to give birth successfully | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| N046 | I have high expectations for my own performance during labor | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| N047 | I expect my labor to be a very positive experience | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| N048 | I believe that my body holds the wisdom to give birth on its own | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| N049 | I have prepared mentally for the childbirth experience | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| N050 | I have a specific image of how my childbirth should go | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| N051 | I have confidence in my ability to succeed in childbirth | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| N052 | I expect to move around the room during labor | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| N053 | Even if it’s not my ideal, I can imagine giving birth at one of a variety of locations (home, birth center, hospital, etc.) | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| N054 | Even if it’s not my ideal, I would be comfortable giving birth at one of a variety of locations (home, birth center, hospital, etc.) | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| N055 | I am confident that I will “be myself” in labor | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| N056 | I expect to feel uninhibited in my noises during labor | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| N057 | I have prepared physically for the childbirth experience | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| N058 | I have high expectations for my own coping ability during labor | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| N059 | I am confident that my birthing environment will be comfortable and relaxing | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| N060 | I expect to feel uninhibited in my movement during labor | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| N061 | I don't expect to be involved in decision-making processes during my labor (especially regarding interventions) | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| N062 | I expect to cope poorly with the pain of labor | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| N063 | I am afraid that I will let myself down in labor | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| N064 | I expect my labor to be \_\_ hours long (from active labor to birth) | 16+ | 12-16 | 8-12 | 4-8 | 0-4 |
| N065 | I expect my partner to be present for the birth (Partner can mean a romantic partner or a birth part... | N/A | No | Yes |
| N066 | I expect my partner to be my primary support person | N/A | No | Yes |
| N067 | I expect to work with a doula | No | Yes |
| N068 | How did your mother give birth to you? | Cesarean Section (Unconscious) | Cesarean Section (Conscious) | Vaginal (Medicated) | Vaginal (Unmedicated) |
| N069 | How close are you to your mother? | Very distant | Moderately distant |Neither close nor distant | Moderately close | Very close |
| N070 | My mother's beliefs and/or experiences of birth have strongly influenced my own beliefs and expectations | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| N071 | I engaged in activities that strengthen mind/body awareness during my pregnancy (ex. yoga, meditation, hypnobirthing, lamaze, acupuncture, massage...) | Not at All | Very Little | Somewhat | Quite a Bit | A Great Deal |
| N072 | I have written or I plan to write a birth plan | No | Yes |
| N073 | My birth plan addresses personal factors (ex. preferences and beliefs) | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| N074 | My birth plan addresses external factors (ex. interventions or emergency situations) | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| N075 | I am open to changes in my birth plan | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| N076 | My partner believes it is important to me to remain calm and composed during labor | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| N077 | My partner expects me to feel uninhibited in my movement during labor | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| N078 | My partner has confidence in my ability to succeed in childbirth | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| N079 | My partner feels I have prepared physically for the childbirth experience | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| N080 | My partner fears that people will talk too much during my labor | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| N081 | My partner does not expect me to be involved in decision-making processes during my labor (especially regarding interventions) | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| N082 | My partner is afraid that I will let myself down in labor | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| N083 | My partner fears that my emotions will become overwhelming during labor | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| N084 | My partner has high expectations for my coping ability during labor | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| N085 | My partner believes that my body holds the wisdom to give birth on its own | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| N086 | My partner believes I will need to be coached during labor (by a doula, partner, midwife...) in order to give birth successfully | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| N087 | My partner expects me to use no pain medications during labor | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| N088 | My partner fears that my birth will not go exactly how I expect | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| N089 | My partner expects me to move around the room during my labor | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| N090 | My partner feels I have prepared mentally for the childbirth experience | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| N091 | Having an unmedicated labor and birth is important to my partner | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| N092 | My partner expects me to cope poorly with the pain of labor | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| N093 | My partner has an ideal of childbirth I feel I must attain | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| N094 | My partner has a specific image of how my childbirth should go | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| N095 | My partner considers me a highly intuitive woman | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| N096 | My partner is confident that my birthing environment will be comfortable and relaxing | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| N097 | My partner has high expectations for my performance during labor | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| N098 | My partner is confident that I will “be myself” in labor | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| N099 | My partner suspects that I will lose control of myself during labor | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| N100 | My partner expects my labor to be a very positive experience | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| N101 | My partner expects me to feel uninhibited in my noises during labor | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |

Appendix B. Postpartum Survey

Note: “INV –“ indicates that the question’s response options have been inverted to preserve directionality among all questions.

|  |  |  |
| --- | --- | --- |
| # | Question | Response Type |
| P001 | How many previous full-term pregnancies have you had? | 0 | 1 | 2 | 3 | 4+ |
| P002 | When was your estimated due date? (MM/DD/YYYY) | Formated date response |
| P003 | Is this a single or a multiple pregnancy? | Single | Multiple |
| P004 | Age | 18-24 | 25-29 | 30-34 | 35-39 | 40+ |
| P005 | Occupation | Free Response |
| P006 | Highest educational level achieved | Less Than High School | High School/GED | Some College | 2-Year College Degree | 4-Year College Degree | Master's Degree | Doctoral Degree | Professional Degree (MD, JD) |
| P007 | Are you currently partnered? | Yes | No |
| P008 | Religious affiliation | Protestant Christian | Roman Catholic | Evangelical Christian | Jewish | Muslim | Hindu | Buddhist | Atheist/Nonreligious | Other | Prefer Not to Say |
| P009 | Average household income | Less than $10,000 | $10,000-$50,000 | $50,000-$100,000 | $100,000-$150,000 | More than $150,000 | Prefer Not to Say |
| P010 | Race | White/Caucasian | African American | Hispanic | Asian | Native American | Pacific Islander | Other |
| P011 | How many siblings do you have? | 0 | 1 | 2 | 3 | 4+ |
| P012 | Highest educational level achieved by your mother | Less Than High School | High School/GED | Some College | 2-Year College Degree | 4-Year College Degree | Master's Degree | Doctoral Degree | Professional Degree (MD, JD) |
| P013 | Highest educational level achieved by your father | Less Than High School | High School/GED | Some College | 2-Year College Degree | 4-Year College Degree | Master's Degree | Doctoral Degree | Professional Degree (MD, JD) |
| P014 | What is your primary motivating factor for choosing an out-of-hospital birth? | Free Response |
| P015 | Did you have a vaginal childbirth or a cesarean birth? | Vaginal Birth | Cesarean Section |
| P016 | Did you receive any pain medications? | No | Epidural | Narcotics | Spinal Block | Other |
| P017 | Where did you give birth? | home | birthing center | hospital | other |
| P018 | Did you give birth at the location you had originally intended? | Yes | No |
| P019 | What day of the week did you give birth? | Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
| P020 | What time of day did you give birth? | Early morning | Late morning | Early afternoon | Late afternoon | Early evening | Late evening | Middle of the night |
| P021 | Relative to your estimated due date, how many days early or late did you give birth? | More than 14 days early | 8-14 days early | 1-7 days early | Gave birth on my due date | 1-7 days late | 8-14 days late | More than 14 days late |
| P022 | How much time did you spend in active labor (4cm or more dilated)? | 0-2 hours | 2-4 hours | 4-6 hours | 6-8 hours | 8-10 hours | 10-12 hours | More than 12 hours |
| P023 | How much time did you spend pushing? | 0-19 minutes | 20-39 minutes | 40-59 minutes | 60-79 minutes | 80-99 minutes | 100-120 minutes | more than 2 hours |
| P024 | Was your partner present during the birth? (Partner can mean a romantic partner or a birth partner) | Yes | No | N/A |
| P025 | Was your partner your primary support person during your labor and birth? | Yes | No | Sometimes | N/A |
| P026 | Did you work with a doula? | Yes | No |
| P027 | Did you rely on a birth plan during your labor and birth? | Yes | No |
| P028 | Interested | Very Slightly or Not at All | A Little | Moderately | Quite a Bit | Extremely |
| P029 | INV - Distressed | Extremely | Quite a Bit | Moderately | A Little | Very Slightly or Not at All |
| P030 | Excited | Very Slightly or Not at All | A Little | Moderately | Quite a Bit | Extremely |
| P031 | INV - Upset | Extremely | Quite a Bit | Moderately | A Little | Very Slightly or Not at All |
| P032 | Strong | Very Slightly or Not at All | A Little | Moderately | Quite a Bit | Extremely |
| P033 | INV - Guilty | Extremely | Quite a Bit | Moderately | A Little | Very Slightly or Not at All |
| P034 | INV - Scared | Extremely | Quite a Bit | Moderately | A Little | Very Slightly or Not at All |
| P035 | INV – Hostile (OMIT) | Extremely | Quite a Bit | Moderately | A Little | Very Slightly or Not at All |
| P036 | Enthusiastic | Very Slightly or Not at All | A Little | Moderately | Quite a Bit | Extremely |
| P037 | Proud | Very Slightly or Not at All | A Little | Moderately | Quite a Bit | Extremely |
| P038 | INV - Irritable | Extremely | Quite a Bit | Moderately | A Little | Very Slightly or Not at All |
| P039 | Alert | Very Slightly or Not at All | A Little | Moderately | Quite a Bit | Extremely |
| P040 | INV – Ashamed (OMIT) | Extremely | Quite a Bit | Moderately | A Little | Very Slightly or Not at All |
| P041 | Inspired | Very Slightly or Not at All | A Little | Moderately | Quite a Bit | Extremely |
| P042 | INV - Nervous | Extremely | Quite a Bit | Moderately | A Little | Very Slightly or Not at All |
| P043 | Determined | Very Slightly or Not at All | A Little | Moderately | Quite a Bit | Extremely |
| P044 | Attentive | Very Slightly or Not at All | A Little | Moderately | Quite a Bit | Extremely |
| P045 | INV – Jittery (OMIT) | Extremely | Quite a Bit | Moderately | A Little | Very Slightly or Not at All |
| P046 | Active | Very Slightly or Not at All | A Little | Moderately | Quite a Bit | Extremely |
| P047 | INV - Afraid | Extremely | Quite a Bit | Moderately | A Little | Very Slightly or Not at All |
| P048 | The lighting in my labor and birth environment was dimmed, dark, or off | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P049 | I labored in a confined space | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P050 | I used water to relax and/or relieve pain during my labor | Not at All | Very Little | Somewhat | Quite a Bit | A Great Deal |
| P051 | Were there people present at your labor and birth besides you, your partner, and your care providers | No | Yes |
| P052 | INV - Some people contributed an unwelcome presence to my labor and birth | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| P053 | Any unwelcome guests were asked to leave (OMIT) | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P054 | Were there other children present during the labor and birth? (OMIT) | No | Yes |
| P055 | Choose what best describes the children's overall level of interest (OMIT) | N/A | Very Uninterested | Somewhat Uninterested | Neither Interested nor Uninterested | Somewhat Interested | Very Interested |
| P056 | Choose what best describes the children's reactions (OMIT) | N/A | Other | Sleepy | Worried | Overwhelmed | Scared | Excited | Calm |
| P057 | I vocalized during contractions | Never | Almost never | Occasionally | Often | All the time |
| P058 | During labor, I focused my attention on my breath | Never | Almost never | Occasionally | Often | All the time |
| P059 | During labor, I focused my attention on someone's face (partner, midwife, doula, someone else) | Never | Almost never | Occasionally | Often | All the time |
| P060 | During labor, I focused my attention on an object | Never | Almost never | Occasionally | Often | All the time |
| P061 | During labor, I focused my attention on a mantra or motivational phrase | Never | Almost never | Occasionally | Often | All the time |
| P062 | I could take labor at my own pace | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P063 | My midwife respected my innate knowledge of my birthing process | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P064 | INV - I was being observed or watched | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| P065 | I felt in control of my own behavior | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P066 | I felt in control of the care I received | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P067 | In general, my experience of labor and delivery was what I expected | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P068 | My partner gave me his/her full presence (OMIT) | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P069 | My midwife gave me her full presence (OMIT) | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P070 | INV - I felt pressured to hurry up and push the baby out | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| P071 | I concentrated fully on my contractions | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P072 | I could not speak during contractions | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P073 | I could not speak between contractions | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P074 | INV - I "lost spirit" at some point during the labor | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| P075 | My partner and I worked together emotionally | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P076 | I felt safe in my surroundings | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P077 | INV - I was following someone else's timetable for labor (OMIT) | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| P078 | My partner and I worked together physically | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P079 | INV - I approached my labor through conscious reasoning and/or rationality | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| P080 | INV - I tried to problem solve or think my way through labor | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| P081 | I ended up laboring or pushing in a position (or positions) that I did not plan for | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P082 | I labored primarily with my eyes closed | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P083 | My surroundings were calm and comfortable | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P084 | INV - My birth did not go according to my birth plan | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| P085 | I was being guided by a sense of "knowing" | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P086 | My behavior was intuitive rather than rational | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P087 | I felt uninhibited | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P088 | I behaved exactly as I expected to | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P089 | I relinquished rational control of myself and listened to my body | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P090 | My partner and I felt intimate | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P091 | I behaved in ways that surprised me | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P092 | My birth environment was "my turf" and I was in charge of it | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P093 | I was aware of cues from my body | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P094 | I listened to the cues from my body | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P095 | I protected by birthing space | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P096 | I could not respond to others if they talked or asked me questions | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P097 | INV - I let my partner down | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| P098 | My partner protected my birthing space during labor | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P099 | INV - I felt inhibited in my noises during labor | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| P100 | I believe that my body holds the wisdom to give birth on its own | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P101 | My baby and I were partners, working together | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P102 | My birthing environment was comfortable and relaxing | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P103 | I made spontaneous noises during contractions | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P104 | My sense of self dissolved | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P105 | My attention was focused internally throughout labor | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P106 | INV - I felt inhibited in my movement during labor | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| P107 | INV - I changed positions only when somebody told me to | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| P108 | I paid attention to the sensations in my body | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P109 | I was able to "be myself" | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P110 | INV - People talked too much | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| P111 | INV - I needed to impress someone | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| P112 | I moved around the room | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P113 | I was relaxed | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P114 | INV - I let myself down | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| P115 | I moved around based on my intuitive knowledge of how to birth | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P116 | My "mental chatter" disappeared | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P117 | INV - My emotions became overwhelming | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| P118 | My birth was a private event | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P119 | INV - I struggled to find a steady rhythm | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| P120 | I gave it "my all" in every moment | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P121 | INV - I tried to escape the sensations in my body | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| P122 | I was involved in all decision-making processes (especially regarding interventions) | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P123 | My partner and I seemed to be the only ones in the room | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P124 | INV - My labor pain felt like suffering | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| P125 | My memories (now) of my labor are mostly focused on my inner experience | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P126 | INV - Time was an important factor in my labor (timing contractions, timing in between contractions, timing overall labor duration, etc.) | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| P127 | INV - I needed to be coached to give birth successfully | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| P128 | My memories (now) of my labor are vague or fluid | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P129 | My labor pain was productive | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P130 | INV - I was following directions for what to do | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| P131 | I traveled through my labor pain | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P132 | I was in my own little world | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P133 | I coped well with the pain of labor | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P134 | INV - My memories (now) of my labor are very vivid | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| P135 | INV - I was acutely aware of how long my labor was taking | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| P136 | Everyone at my birth was following my lead | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P137 | My external environment felt distant to me | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P138 | I felt connected to all the women who have labored and birthed before me | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P139 | INV - I found it very difficult to remain relaxed | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| P140 | INV - My memories (now) of my labor are very sharp and detailed | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| P141 | I felt a sense of oneness with the world | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P142 | INV - I was helpless against the strength of my labor pain | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| P143 | I lost track of time | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P144 | Time seemed to slow down or stand still | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P145 | I accepted my labor pain | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P146 | I was oblivious to the world beyond my immediate environment | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P147 | My actions were purposeful and essential, not frantic or excessive | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
| P148 | INV - I dreaded the coming of each contraction | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
| P149 | INV - As a result of my childbirth experience, my self-confidence \_\_\_\_\_\_\_\_\_ | Greatly Decreased | Somewhat Decreased | Stayed the Same | Somewhat Increased | Greatly Increased |
| P150 | My labor and delivery experience was \_\_\_\_\_\_\_\_\_\_ | Much worse than expected | Slightly worse than expected | Exactly as expected | Slightly better than expected | Much better than expected |
| P151 | I felt my labor was a \_\_\_\_\_\_\_ experience | Very Negative | Somewhat Negative | Positive and Negative | Somewhat Positive | Very Positive |
| P152 | How long did it feel like you were in active labor (4cm or more dilated)? | 0-2 hours | 2-4 hours | 4-6 hours | 6-8 hours | 8-10 hours | 10-12 hours | More than 12 hours |
| P153 | How long did it feel like you were pushing? | 0-19 minutes | 20-39 minutes | 40-59 minutes | 60-79 minutes | 80-99 minutes | 100-120 minutes | more than 2 hours |
| P154 | How intense was your labor pain during early labor (0-4cm dilated)? | Worst Pain I Can Imagine | Severe/Overwhelming | Intense | Moderate/Discomforting | Mild | No Pain |
| P155 | How intense was your labor pain during active labor (4cm or more dilated)? | Worst Pain I Can Imagine | Severe/Overwhelming | Intense | Moderate/Discomforting | Mild | No Pain |
| P156 | How intense was your labor pain during pushing? | Worst Pain I Can Imagine | Severe/Overwhelming | Intense | Moderate/Discomforting | Mild | No Pain |

Appendix C. Psychology Department Requirements

**Collaboration in Senior Thesis Work**

**The Relationship between the Senior Thesis and Earlier Work**

Indicate below whether there is any overlap between your senior thesis and earlier work that you did for junior reports, junior papers, or papers for various courses.

Overlap \_\_\_\_\_\_\_

No overlap \_\_\_X\_\_\_

If you checked the box indicating that there is overlap between your senior thesis and previous work, please describe the overlap on a separate page, and include it within the thesis after this form.

Readers of your thesis may, if they choose, ask to see earlier papers that you indicate have some overlap with your senior thesis.

Indicate below whether all or part of your thesis resulted from work done collaboratively with one or more other people.

Collaboration \_\_\_ \_\_\_

No collaboration \_\_\_X\_\_\_

If you checked the box indicating that your thesis work was done entirely, or in part, in collaboration with other people, describe the nature of the collaboration and what resulted from it on a separate page, and include it within the thesis after this form.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Did your Senior Thesis involve research with human subjects? **Yes** / No

If your Senior Thesis DID involve research with human subjects, please indicate your IRB Case Number below.

#\_\_\_0000005520\_\_\_\_\_ Approval Date \_\_December 22, 2011\_\_\_