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Outcomes of HypnoBirthing

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Abstract: Compared with two surveys of usual care, these data provide strong support for the hypotheses that HypnoBirthing mothers have: fewer medical inductions (3.3%-21.1% difference); less IV fluids (37.9%-42.1% difference); less continuous fetal monitoring (42.4%-44.3% difference; less pitocin infusion (18%-19% difference); fewer artificial rupture of membranes (18.8%-18.9% difference); fewer IV/IM anesthesias (4.4%-5.7% difference); fewer episiotomies (13.3%-15.1% difference); fewer epidural anesthesias (44.6%-49.1% difference); fewer caesarian sections (14.4%-17% difference); less frequent use of obstetricians (25%-39.7% difference); more frequent use of midwives (42.2%-45.3% difference); less use of hospitals (11.5%-12.3% difference); more use of home and birthing centers; more use of a wider variety of birthing positions; and infants of older gestational age than usual care. Self-selection is likely a major factor in our findings.

Keywords: HypnoBirthing, Childbirth, Childbirth Preparation

HypnoBirthing ® (Mongan, 2005) builds on the work of Dye (1891) and Grantly Dick-Read (2006). Dick-Read was called to attend the birth of a woman in Whitechapel, London early in the twentieth century and found her in a hovel near the railway arches. There was a pool of water on the floor, the window was broken, rain was pouring in, and the bed had no proper covering. Despite the poor conditions, he noted an atmosphere of "quiet kindliness." He offered the woman chloroform, but she refused, the first in his experience to refuse. When asked why, she replied, "It didn't hurt. It wasn't meant to, was it doctor?"(Dick-Read, 2004, p. 19)

Dick-Read goes on to explain that the uterus is composed of three layers: outside longitudinal muscle fibers which, when they contract, tend to expel the baby and pull the cervix open; the

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middle layer of mainly blood vessels and support; and the inner circular muscle fibers which when they contract, tend to hold the cervix closed (Dick-Read, 2004, p. 34). Conditioning and tradition in Western societies teaches fear of childbirth and expectation of pain. This fear causes tension. Fear and tension activate the fight or flight or emergency (adrenergic) reaction, producing catecholamines, which shunt blood flow to the arms and legs and away from viscera. This causes the smooth muscle circular fibers around the lower half of the uterus to contract and close the cervix. The longitudinal muscles contract and push the baby against a closed cervix, causing pain. This is a vicious cycle and can lead to failure to progress, and medical or surgical intervention (Dick-Read, 2004, p. 45).

Dick-Read discussed the role of imagery and conditioning in expectation of fear, tension and pain, and the role of counter-conditioning and relaxation in reversing this cycle. He considered a possible role for hypnosis (Dick-Read, 2004, p. 178) and cites Kroger and Freed, (1951) but did not make it a part of his method, opting instead for the progressive relaxation method of Jacobson (1968) and denying that progressive relaxation had similarities to hypnosis (Dick-Read, 2004, p. 273). Kroger and Freed (1951) and Kroger (1961) promoted the use of hypnosis in childbirth, but their perspective developed no following and was not a comprehensive program, lacking childbirth education, breathing techniques, and imagery.

Chiasson (1990) used hypnosis for childbirth, and August (1961) attended more than 1,000 births using hypnosis as the only anesthetic. David Cheek, an obstetrician who was a president of the American Society of Clinical Hypnosis, used and taught hypnosis for childbirth (Rossi & Cheek, 1988). Hassan-Schwartz Galle (2000) presents a detailed account of a case using hypnosis for labor preparation as well as birthing.

The American Psychological Association's Division of Psychological Hypnosis defines hypnosis as "Hypnosis typically involves an introduction to the procedure during which the subject is told that suggestions for imaginative experiences will be presented. The hypnotic induction is an extended initial suggestion for using one's imagination, and may contain further elaborations of the introduction. A hypnotic procedure is used to encourage and evaluate responses to suggestions. When using hypnosis, one person (the subject) is guided by another (the hypnotist) to respond to suggestions for changes in subjective experience, alterations in perception, sensation, emotion, thought

or behavior (Green, Barbasz, Barrett, Montgomery, 2005, p. 263). Spiegel & Spiegel (1978) defined hypnosis as a state of highly focused attention coupled with a suspension of peripheral awareness.

Mongan (2005) studied Dick-Read before her pregnancies in the mid-late 1950's. She planned natural childbirth, but the standard of care in Obstetrics at the time was to use anesthesia, so as her first baby was crowning, she was anesthetized and awoke to find her baby bruised by forceps and without enough time for her and her husband to bond with him. Her second childbirth was similar. For her third birthing, she insisted not only that she not be drugged, but that her husband be present.

In 1987 she became certified in hypnotherapy and a year or so later, began applying hypnosis to Dick-Read's approach and adding breathing techniques, imagery, and childbirth education, leading to the first HypnoBirthing baby in 1990. The first edition of her book appeared in 1992 and she began a grass-roots movement, training parents and practitioners. The approach has become international and there are now more than 1,200 practitioners worldwide.

A. Philosophy

- The philosophy of HypnoBirthing is as important as the techniques taught.
- 'Birth is a natural, normal and healthy human experience. Women's bodies are created to conceive, nurture the development of babies, and to birth….
- Families wishing to experience natural, unmedicated birth should be supported in their decision and encouraged through care and information to view birth as a positive, natural, and even joyous experience….
- Healthy women preparing for normal birth should be spared fear-provoking and intimidating discussions of abnormalities and dangers in the absence of any medical indication of such.
- Women, their partners, and their babies are the principal players in this most significant experience….
- Pregnant couples should be encouraged to ask questions and express their wishes or concerns….
- Routine, non-evidence-based procedures, testing, and drugs should be avoided during the pregnancies and

birthings of healthy women unless there is specific, scientific indication for their use.

- Evidence shows that pre-born and newborn babies are aware, sensitive, and feeling human beings who are participants in pregnancy and birth….
- Care during birthing should be based solely on the well-being and needs of the mother and baby, and not upon time constraints or personal needs of caregivers or facility administration.
- Pregnant families need to be able to trust that information provided by their caregivers is truthful and dispensed only after full consideration of the particular woman's prognosis, the benefit-to-risk factor and the desire of the birthing family to birth naturally.
- Whenever circumstances allow, one or the other parent should participate in "receiving" their baby at birth if that is their wish.
- Women's bodies and, in particular, their vaginas, are as sacrosanct during pregnancy and birth as they are at any other time.
- Families who are considered key players in their own birthings and who are afforded an opportunity to establish rapport, communication, and a trusting relationship with their caregiver are least likely to leave their birthings in anger or with a feeling of betrayal, ready to explore litigation.
- It is a fundamental right of every family to expect that a care provider be willing to take the time to listen and hear, and, in response, to ask—yes, to ask—how they feel about particular medications, tests and procedures that involve the mother's health and safety, as well as that of her baby.
- Caregivers who are supportive of families wishing to have normal births deserve to be addressed in a spirit of mutual cooperation and trust' (Mongan, 2005, pp. 25-26).

B. Goals

The curriculum is a comprehensive childbirth education program taught in five weekly 2-1/2 hour sessions. All sessions include videos of actual births.

Unit #1 teaches: dehypnotizing from cultural conditioning of expectancies of fear, tension, and pain in birthing; how the uterus works; how fear affects labor and uterine muscles;

history of women and birthing; hypnosis and deep relaxation/creating positive birth outcomes; psycho-physical exercises; the mind-body connection; what hypnosis is; that the hypnotized person does not do anything against their will; and HypnoBirthing stories.

Unit #2 teaches: prebirth, perinatal, and postnatal bonding; selecting caregivers and birthing environment; preparing mind and body; progressive and instant relaxation techniques for deepening; hypnotic relaxation and visualizations; nutrition; exercise; posture; breathing techniques; and perineal massage.

Unit #3 teaches: birth preferences; hospital records and registration; breech presentation; when baby is nearly ready; looking at your due date; special circumstances that require the attention of a caregiver; avoiding artificial induction of labor; achieving a natural start of labor; your body, working with you and for you; and releasing emotions, fears, and limiting thoughts.

Unit #4 teaches: overview of childbirth; onset of labor, thinning and opening phase; arriving at the hospital; as labor moves along; if labor slows or rests; as birthing advances—nearing completion; and birth rehearsal imagery.

Unit #5 teaches: hallmarks of labor; mother nears completion—thinning and opening phase ends; positions during descent and birthing; positioning and repositioning; birth—the final act; scripts and illustrations; pelvic station; birth explained simply; visualization for optimal birth positioning; and recommended reading list.

C. Some description of what is taught

Four basic techniques are taught: relaxation, breathing, visualization, and deepening. Parents are taught that a minimum of 20 hours of home practice is necessary to achieve competence. Parents are encouraged to find a time to practice daily and to practice together so that the husband or partner can serve as labor companion and be deeply involved. Guided imaginary visualizations are provided in scripts for this purpose.

Progressive relaxation is taught as the first method of hypnotic induction. Several other techniques of hypnotic induction are taught and the mother is encouraged to try them all and become proficient in the one or two that she likes best.

Three types of breathing are taught: one to initiate relaxation and for the periods between contractions; one for during contractions in the thinning and opening phase; and one for during contractions during the birthing phase. Mothers are encouraged to breathe the baby down and to practice with open glottis, mother-guided breathing and allowing natural birthing instincts during the birthing phase rather than pushing to avoid breaking of blood vessels, pain, damage to the pelvic floor, and hemorrhoids that pushing with the Valsalva maneuver can cause.

Visualizations are taught for the thinning and opening phase and to go along with each type of breathing.

Deepening techniques are taught to use between contractions to get more deeply into hypnosis, become more relaxed, and to focus on the baby, her uterus, and the birth path. In deeper hypnosis, mothers can become amnesiac for the outside world and be more present for her baby and the birthing. This is the opposite of conventional expectations about hypnosis, that it might be used to dissociate from the birth.

The Current Study

Objectives

The current study compares the outcomes of births of HypnoBirthing mothers with national U.S. data and from a large survey of U.S. mothers, (DeClercq, Sakala, Corry & Applebaum, 2006).

Hypotheses

We hypothesized that HypnoBirthing mothers would have: fewer medical inductions; less frequent IV fluids; less continuous fetal monitoring; less pitocin infusion; fewer artificial rupture of membranes; fewer IV/IM anesthesias; fewer episiotomies; fewer epidural anesthesias; fewer caesarian sections; less frequent use of obstetricians; more frequent use of midwives; less use of hospitals; more use of home and birthing centers for birth; older gestational age; and larger birth weight than usual care comparisons.

Method

HypnoBirthing data were compared to U.S. National Vital Statistics Reports and to the results of the survey Listening to Mothers (DeClercq et al., 2006). The most recent U.S. National

Vital Statistics Report available was for 2009. Listening to Mothers was conducted in 2006. To decrease the effect of secular trends, we compared HypnoBirthing data from 2009 to the U.S. National Vital Statistics Report for 2009 (Martin, et al., 2011), and also compared U.S. data from 2009 to HypnoBirthing data from 2009-2011, testing for differences among years. We decided not to go back to HypnoBirthing data from 2006 to compare to Listening to Mothers because this would have yielded a smaller treated group and meant we were using two treated groups.

HypnoBirthing data were gathered from birth reports voluntarily completed online by HypnoBirthing parents, using a link given to them by HypnoBirthing practitioners. Kathleen Dolce wrote the survey on Survey Monkey with input from the HypnoBirthing advisory board. The questions were based on what had been used in the past on a paper birth report given to parents by practitioners and greatly expanded, modeling some of the data gathered by the Listening to Mothers survey. Listening to Mothers II was administered January-February 2006 to 1,373 mothers online and 200 by telephone.

Statistical tests were done on SPSS version 17 for Mac. The data were mostly presented as percentages. We converted these to proportions, which were tested by chi-square.

Results

All data are given in percentages, unless otherwise noted. Because 2009 is the most recent year reported for U.S. data, we only compare the HypnoBirthing data to U.S. data from 2009, we also compared all of the outcome measures from the HypnoBirthing data by year. There were no significant differences between 2009, 2010, and 2011 for all outcome measures, with the exception of labor interventions (IV fluids and epidural anesthesia). We used non-parametric comparisons (chi-square) for categorical data and one-way independent ANOVAs for ordinal data. Significant differences between years in HypnoBirthing data were only seen for epidural anesthesia (χ^2 (2) = 7.45, $p < .05$) and IV fluids (χ^2 (2) = 8.76, $p < .05$).

HypnoBirthing data from 2009-2011 has an N of 1,110. HypnoBirthing data from 2009 alone has an N of 327.

The US births data includes all women who gave birth in the year 2009, N=2,727,351. The Listening to Mothers II data was reported in 2006 and is based on sample of 1,573 mothers who

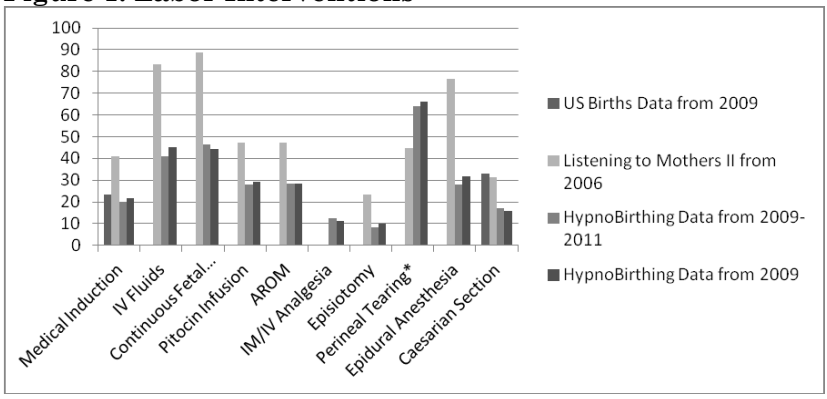
gave birth to a single baby (no multiples were included) in a hospital in 2005.

Table 1. Labor interventions

Labor Intervention	US Births Data from 2009 (n=2,727,351)	Listening to Mothers II from 2006 (n=1,573)	HypnoBirthing Data from 2009-2011 (n=1,110)	HypnoBirthing Data from 2009 (n=327)
Medical Induction	23.2	41% attempted; 34% successful	19.9	21.5
IV Fluids		83.2	41.1	45.3
Continuous Fetal Monitoring		88.7	46.3	44.4
Pitocin Infusion		47.1	28.1	29.1
AROM		47.3	28.5	28.4
IM/IV Analgesia		17.0	12.6	11.3
Episiotomy		23.4	8.3	10.1
Perineal Tearing*		44.9	64.1	66.0
Epidural Anesthesia		76.4	27.8	31.8
Caesarian Section	32.9	31.5	17.1	15.9

**Perineal tearing coded as "Stitching near vagina" for Listening to Mothers II group*

Figure 1: Labor Interventions



Unless otherwise noted, all percentages are given for ALL births, including vaginal delivery and Caesarean section.

Table 1 and Figure 1 Comparisons – Labor Interventions

Medical Induction: HypnoBirthing from 2009-2011 had significantly fewer medical inductions than U.S. Births in 2009, and from Listening to Mothers. HypnoBirthing in only 2009 was

not different from U.S. Births in 2009, but had fewer medical inductions than Listening to Mothers.

- US Births 2009 vs. HypnoBirthing 2009-2011: χ^2 (1) = 6.742, p = 0.009*, difference of 3.3%
- US Births 2009 vs. HypnoBirthing 2009: χ^2 (1) = 0.59, p = 0.442
- LTM 2006 vs. HypnoBirthing 2009-2011: χ^2 (1) = 63.944, p < 0.001*, difference of 21.1%
- LTM 2006 vs. HypnoBirthing 2009: χ^2 (1) = 19.819, p < 0.001*, difference of 19.5%

IV fluids were given less often to HypnoBirthing mothers than to Listening to Mothers. These data were not recorded in U.S. Births.

- LTM 2006 vs. HypnoBirthing 2009-2011: χ^2 (1) = 380.031, p < 0.001*, difference of 19.5%
- LTM 2006 vs. HypnoBirthing 2009: χ^2 (1) = 157.014, p < 0.001*, difference of 37.9%

Continuous Fetal Monitoring was used less often in the HypnoBirthing sample than in the Listening to Mothers sample. These data were not recorded in U.S. Births.

- LTM 2006 vs. HypnoBirthing 2009-2011: χ^2 (1) = 101.840, p < 0.001*, difference of 42.4%
- LTM 2006 vs. HypnoBirthing 2009: χ^2 (1) = 43.660, p < 0.001*, difference of 44.3%

Pitocin Infusion was used less often in the HypnoBirthing sample than in the Listening to Mothers sample. These data were not recorded in U.S. Births.

- LTM 2006 vs. HypnoBirthing 2009-2011: χ^2 (1) = 98.522, p < 0.001*, difference of 19%
- LTM 2006 vs. HypnoBirthing 2009: χ^2 (1) = 35.818, p < 0.001*, difference of 18%

AROM: Artificial rupture of membranes was used less often in HypnoBirthing mothers than in the Listening to Mothers mothers. These data were not recorded in U.S. Births.

- LTM 2006 vs. HypnoBirthing 2009-2011: χ^2 (1) = 96.546, p < 0.001*, difference of 18.8%
- LTM 2006 vs. HypnoBirthing 2009: χ^2 (1) = 39.062, p < 0.001*, difference of 18.9%

IM/IV Analgesia was used less frequently in the HypnoBirthing sample than in the Listening to Mothers sample. These data were not recorded in U.S. Births.

- LTM 2006 vs. HypnoBirthing 2009-2011: χ^2 (1) = 9.619, p = 0.002*, difference of 4.4%
- LTM 2006 vs. HypnoBirthing 2009: χ^2 (1) = 6.451, p = 0.011*, difference of 5.7%

Episiotomy was performed less often in the HypnoBirthing sample than in the Listening to Mothers sample. These data were not recorded in U.S. Births.

- LTM 2006 vs. HypnoBirthing 2009-2011: χ^2 (1) = 104.545, p < 0.001*, difference of 15.1%
- LTM 2006 vs. HypnoBirthing 2009: χ^2 (1) = 28.773, p < 0.001*, difference of 13.3%

Epidural Anesthesia was used less often in the HypnoBirthing sample than in the Listening to Mothers sample. These data were not recorded in U.S. Births.

- LTM 2006 vs. HypnoBirthing 2009-2011: χ^2 (1) = 624.217, p < 0.001*, difference of 49.1%
- LTM 2006 vs. HypnoBirthing 2009: χ^2 (1) = 250.708, p < 0.001*, difference of 44.6%

Caesarian Section was used less often in the HypnoBirthing sample than in the Listening to Mothers sample and the U.S. Births sample.

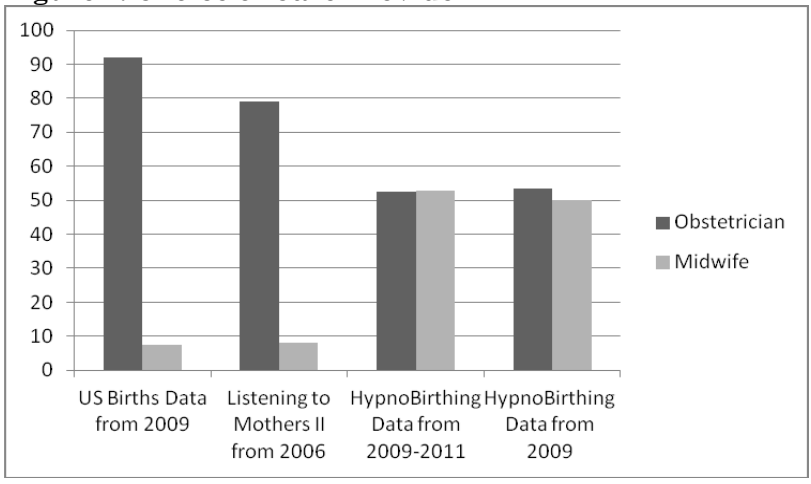
- US Births 2009 vs. HypnoBirthing 2009-2011: χ^2 (1) = 125.225, p < 0.001*, difference of 15.8%
- US Births 2009 vs. HypnoBirthing 2009: χ^2 (1) = 42.795, p < 0.001*, difference of 17%
- LTM 2006 vs. HypnoBirthing 2009-2011: χ^2 (1) = 70.498, p < 0.001*, difference of 14.4%

- LTM 2006 vs. HypnoBirthing 2009: χ^2 (1) = 31.998, p < 0.001*, difference of 15.6%

Table 2. Choice of care provider(s)

Care Provider	US Births Data from 2009	Listening to Mothers II from 2006	HypnoBirthing Data from 2009-2011	HypnoBirthing Data from 2009
Obstetrician	92.1	79	52.4	53.5
Midwife	7.4	8	52.7	50.2

Figure 2: Choice of Care Provider



These data show a trend for HypnoBirthing parents to use more midwives than comparison groups, but these data are not ideally comparable because: (1) Care provider data for U.S. births data and LTM II are given ONLY for births in hospital and (2) The HypnoBirthers identify ALL professionals present, not just the main provider, which is why percentages sum to over 100%.

Table 2 and Figure 2 Comparisons – Care Provider

Obstetrician

- US Births 2009 vs. HypnoBirthing 2009-2011: χ^2 (1) = 2396.965, p < 0.001*, difference of 39.7%
- US Births 2009 vs. HypnoBirthing 2009: χ^2 (1) = 668.768, p < 0.001*, difference of 38.6%
- LTM 2006 vs. HypnoBirthing 2009-2011: χ^2 (1) = 185.246, p < 0.001*, difference of 26.6%

- LTM 2006 vs. HypnoBirthing 2009: χ^2 (1) = 79.663, p < 0.001**, difference of 25.5%

Midwife

- US Births 2009 vs. HypnoBirthing 2009-2011: χ^2 (1) = 3318.605, p < 0.001*, difference of 45.3%
- US Births 2009 vs. HypnoBirthing 2009: χ^2 (1) = 871.806, p < 0.001*, difference of 42.8%
- LTM 2006 vs. HypnoBirthing 2009-2011: χ^2 (1) = 667.369, p < 0.001*, difference of 44.7%
- LTM 2006 vs. HypnoBirthing 2009: χ^2 (1) = 371.751, p < 0.001*, difference of 42.2%

Table 3. Birthplace

Birthplace	US Births Data from 2009	Listening to Mothers II from 2006	HypnoBirthing Data from 2009-2011	HypnoBirthing Data from 2009
Hospital	98.9	100	86.6	87.4
Home	0.7	0	7.1	5.7
Freestanding birth center	0.3	0	6.3	6.9

These data show a trend for more HypnoBirthing parents to give birth at home and freestanding birth centers, but LTM II data was collected exclusively from mothers who gave birth in the hospital.

Hospital

- US Births 2009 vs. HypnoBirthing 2009-2011: χ^2 (1) = 1544.518, p < 0.001*, difference of 12.3%
- US Births 2009 vs. HypnoBirthing 2009: χ^2 (1) = 392.909, p < 0.001*, difference of 11.5%

Home

- US Births 2009 vs. HypnoBirthing 2009-2011: χ^2 (1) = 655.801, p < 0.001*, difference of 6.4%
- US Births 2009 vs. HypnoBirthing 2009: χ^2 (1) = 122.778, p < 0.001*, difference of 5%

Freestanding Birth Center

- US Births 2009 vs. HypnoBirthing 2009-2011: χ^2 (1) = 1331.319, p < 0.001* difference of 6%
- US Births 2009 vs. HypnoBirthing 2009: χ^2 (1) = 494.798, p < 0.001*, difference of 6.6%

Figure 3: Birthplace

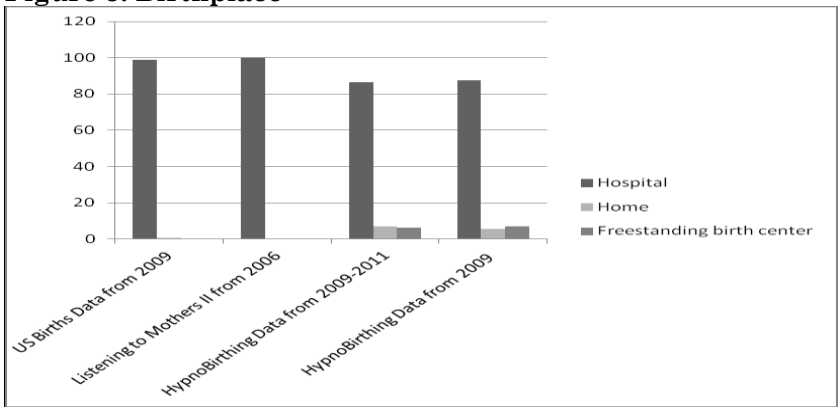


Table 3 and Figure 3 Comparisons – Birthplace

These categories are mutually exclusive response options, therefore birthplaces are analyzed all together:

- US Births 2009 vs. HypnoBirthing 2009-2011: χ^2 (2) = 1993.547, $p < 0.001$*
- US Births 2009 vs. HypnoBirthing 2009: χ^2 (2) = 617.043, $p < 0.001$*

Table 4. Gestational age

Gestational Age	US Births Data from 2009	Listening to Mothers II from 2006	HypnoBirthing Data from 2009-2011	HypnoBirthing Data from 2009
Less than 37 weeks	12.2	6	5.0	5.8
37 weeks to 38 weeks	27.6	48	5.6	5.5
38 weeks to 39 weeks			11.8	14.4
39 weeks to 40 weeks	27.5		28.2	25.4
40 weeks to 41 weeks	27.2	29	29.1	30.9
41 weeks to 42 weeks		18	16.5	14.1
More than 42 weeks	5.5		3.8	4.0

Note: The US Births Data for gestational age is reported 37-38 weeks, 39 weeks, 40-41 weeks, and 42 and higher weeks, so it's difficult to identify the comparisons. The LTM data also does not follow the given timeline.

Table 4 Comparisons – Gestational Age

Because these categories are mutually exclusive, we have done one chi-square comparison for all gestational age categories; this is why there are 2 degrees of freedom instead of 1 for these

comparisons. These data show HypnoBirthing babies to be born at later ages than comparison group babies.

- US Births 2009 vs. HypnoBirthing 2009-2011: χ^2 (2) = 525.331, $p < 0.001$*
- US Births 2009 vs. HypnoBirthing 2009: χ^2 (2) = 110.019, $p < 0.001$*
- LTM 2006 vs. HypnoBirthing 2009-2011: χ^2 (2) = 288.531, $p < 0.001$*
- LTM 2006 vs. HypnoBirthing 2009: χ^2 (2) = 104.545, $p < 0.001$*

Figure 4: Low Birth Weight and Large Infants

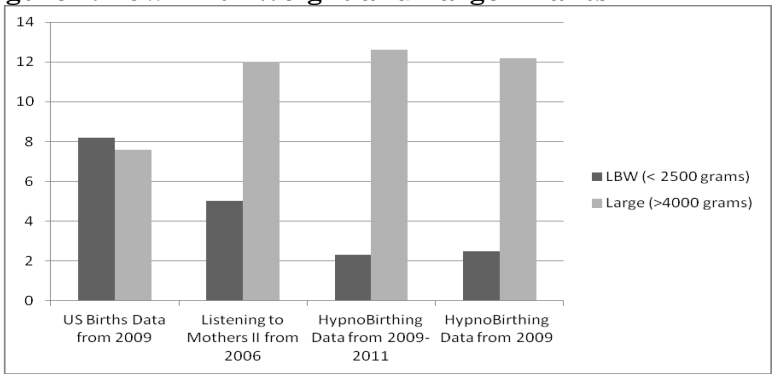


Table 5. Low Birth Weight and Large Infants

Infant Weight	US Births Data from 2009	Listening to Mothers II from 2006	HypnoBirthing Data from 2009-2011	HypnoBirthing Data from 2009
LBW (< 2500 grams)	8.2	5	2.3	2.5
Large (>4000 grams)	7.6	12	12.6	12.2

Table 5 and Figure 4 Comparisons – LBW and Large Infants

These data show fewer HypnoBirthing infants born at low birth weights than the U.S. sample, and when all three years of the HypnoBirthing sample are compared to Listening to Mothers, but marginal (p=0.043) when only 2009 is compared to the Listening to Mothers sample. Low Birth Weight (< 2500 grams)

- US Births 2009 vs. HypnoBirthing 2009-2011: χ^2 (1) = 50.591, $p < 0.001$*
- US Births 2009 vs. HypnoBirthing 2009: χ^2 (1) = 14.38, $p < 0.001$*

- LTM 2006 vs. HypnoBirthing 2009-2011: χ^2 (1) = 12.429, p < 0.001*
- LTM 2006 vs. HypnoBirthing 2009: χ^2 (1) = 4.111, p = 0.043

These data show more HypnoBirthing infants born at large weights than the U.S. sample, but not when compared to the Listening to Mothers sample. Large Infants (>4000 grams)

- US Births 2009 vs. HypnoBirthing 2009-2011: χ^2 (1) = 39.699, p < 0.001*
- US Births 2009 vs. HypnoBirthing 2009: χ^2 (1) = 9.991, p = 0.00157307*
- LTM 2006 vs. HypnoBirthing 2009-2011: χ^2 (1) = 0.216, p = 0.642
- LTM 2006 vs. HypnoBirthing 2009: χ^2 (1) = 0.012, p = 0.913

Table 6. Mother's position in birthing

Mother's Position	Listening to Mothers II from 2006	HypnoBirthing Data from 2009-2011	HypnoBirthing Data from 2009
Lying on back	57	39.6	40.4
Lying on side	4	14.0	10.6
Sitting/Semi-reclining	35	31.3	33.6
Birth stool/Squatting	3	7.2	7.9
Standing	0 (Not Reported)	1.6	1.0
Kneeling	1	6.3	6.5
In water	Not reported	8.4	6.9

US Births Data not available for mother's position during labor.

Figure 5: Mother's Position in Birthing

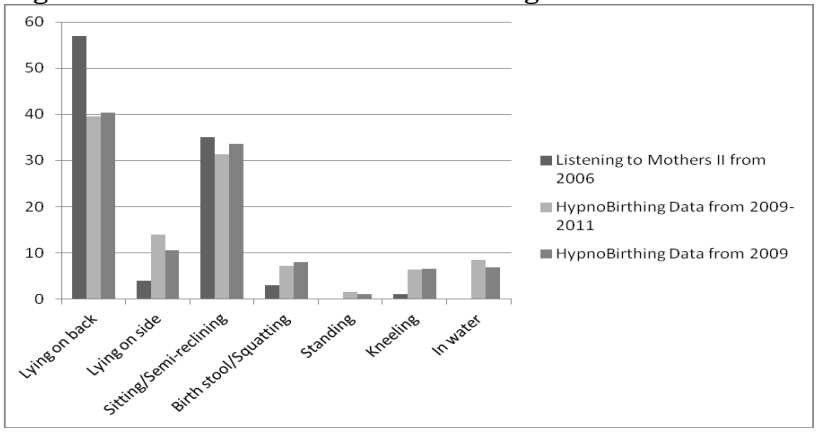


Table 6 and Figure 5 Comparisons – Mother's Position in Birthing

These categories are not mutually exclusive, therefore they are analyzed separately, they are not reported for US Births. Lying on Back is less frequent among HypnoBirthing mothers.

- LTM 2006 vs. HypnoBirthing 2009-2011: χ^2 (1) = 78.678, p < 0.001*, difference of 17.4%
- LTM 2006 vs. HypnoBirthing 2009: χ^2 (1) = 30.257, p < 0.001*, difference of 16.6%

Lying on Side is more frequent among HypnoBirthing mothers.

- LTM 2006 vs. HypnoBirthing 2009-2011: χ^2 (1) = 86.461, p < 0.001*, difference of 10%
- LTM 2006 vs. HypnoBirthing 2009: χ^2 (1) = 24.83, p < 0.001*, difference of 6.6%

Sitting/Semi-Reclining is not different.

- LTM 2006 vs. HypnoBirthing 2009-2011: χ^2 (1) = 4.148, p = 0.04168373
- LTM 2006 vs. HypnoBirthing 2009: χ^2 (1) = 0.23, p = 0.63152383

Birth Stool/Squatting is more frequent among HypnoBirthing mothers.

- LTM 2006 vs. HypnoBirthing 2009-2011: χ^2 (1) = 25.691, p < 0.001*, difference of 4.2%
- LTM 2006 vs. HypnoBirthing 2009: χ^2 (1) = 18.05, p < 0.001*, difference of 4.9%

Kneeling is more frequent among HypnoBirthing mothers.

- LTM 2006 vs. HypnoBirthing 2009-2011: χ^2 (1) = 58.678, p < 0.001*, difference of 5.3%
- LTM 2006 vs. HypnoBirthing 2009: χ^2 (1) = 41.417, p < 0.001*, difference of 5.5%

Table 7. HypnoBirthing mothers' (2009-2011) comfort in labor

Comfort Level	Early Labor (6-8cm)	Late Labor	Birthing
Comfortable	33.0	11.2	14.8
Mostly comfortable	29.0	19.8	19.9
Uncomfortable	20.2	25.3	28.2
Painful	10.0	25.9	23.2
Extremely painful	7.8	17.9	13.9

Table 8. Statements about how HypnoBirthing benefitted mothers (2009-2011)

Hypno Birthing helped me…	Be more confident in my ability to birth	Be able to communi-cate better with my care provider	Have a better under-standing of birthing options	Have a more gentle birth	Have a more comfort-able birth	Have a shorter labor	Have a safer birth	Make good deci-sions for birthing	Be ade-quately prepared for labor and birth
Strongly agree	75.2	55.3	67.9	51.7	48.7	30.6	43.9	61.9	59.5
Agree	22.0	29.4	23.7	24.2	25.0	14.9	24.1	29.9	29.4
Neither agree nor disagree	1.9	12.0	6.0	13.0	12.7	26.6	21.0	5.2	5.7
Disagree	0.4	1.5	1.3	4.8	6.5	12.6	3.5	0.8	3.0
Strongly disagree	0.4	0.4	0.5	2.1	2.5	8.3	2.4	0.9	1.9
N/A	0.2	1.4	0.6	4.2	4.6	7.1	5.1	1.1	0.5

Table 9. Satisfaction with HypnoBirthing experience (2009-11)

Satisfaction with HypnoBirthing experience	Would you use HypnoBirthing again?	Will you recommend HypnoBirthing to others?
Yes	72.9	83.2
No	4.1	1.5
Unsure	16.4	8.8

Table 10. Descriptive words mothers chose to describe their birthing experience

Mothers felt…	Percentage of HypnoBirthing Mothers (2009-2011)	Percentage of Listening to Mothers II Mothers
Energetic	15.5	
Exhausted	34.5	
Supported	74.1	
Unsupported	0.8	
Focused	66.0	
In Control	42.1	
Agitated	6.3	28
Alert	40.4	45
Calm	44.5	36
Confident	48.1	42
Capable	54.8	43
Frightened	12.2	37
Groggy	5.5	26
Helpless	7.2	24
Overwhelmed	23.3	44
Powerful	37.7	18
Unafraid	31.4	21
Weak	10.1	30
Excited	48.0	
Ecstatic	14.9	
Orgasmic	1.1	

Comfort in labor, statements of benefit, satisfaction, and descriptive words are not reported for US Births and only descriptive words are reported for Listening to Mothers.

Discussion

All hypotheses were strongly supported with the exception of medical induction of labor, which was supported in comparison with Listening to Mothers and of the HypoBirthing 2009-2011 with U.S. Births in 2009, but not in the comparison of HypnoBirthing 2009 with U.S. Births in 2009. This is apparently because of the small sample size of HypnoBirthing 2009. Similarly, hypotheses on HypnoBirthing babies having fewer low birth weight infants is significant when compared to U.S. Births, and when three years of HypnoBirthing infants are compared to Listening to Mothers, but not when only 2009 births are compared. These data also show more HypnoBirthing infants born at large weights than the U.S. sample, but not when compared to

the Listening to Mothers sample, similarly because the sample size is small.

These data provide strong support for the hypotheses that: HypnoBirthing mothers have: fewer medical inductions; less frequent IV fluids; less continuous fetal monitoring; less pitocin infusion; fewer artificial rupture of membranes; fewer IV/IM anesthesias; fewer episiotomies; fewer epidural anesthesias; fewer caesarian sections; less frequent use of obstetricians; more frequent use of midwives; less use of hospitals; more use of home and birthing centers for birth; more use of a wider variety of birthing positions; and infants of older gestational age than usual care.

We also provide data on HypnoBirthing mothers' comfort during labor, but there are no comparable data for usual care.

Limitations of our study are mainly years for comparison and self-selection of women who chose HypnoBirthing. The most recent compilation of U.S. National data on births available was 2009. Listening to Mothers was conducted in 2006. We have data on HypnoBirthing earlier than 2009, but the numbers get smaller as we go back in time, and it seemed confusing to present HypnoBirthing data from 2006 as well as 2009-2011. We did compare change over years in HypnoBirthing data and found significant differences only for epidural anesthesia and IV fluids.

Self-selection of women who chose HypnoBirthing is likely a major factor in our findings. Women who are interested in natural birth may be more motivated to take better care of themselves than women in usual care, be better informed about childbirth, and be better educated in general.

Further comparisons between HypnoBirthing and usual care should be done, especially as future samples of U.S. National birth data become available. These would clarify questions deriving from comparability among years. Issues of self-selection can only be solved by randomized clinical trials.

Until future studies settle questions of comparability of years and self-selection, we can conclude at this point that it is possible that HypnoBirthing confers significant benefits on mothers and babies.

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