

The Use and Overuse of Cesarean Sections in Mexico

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Mujeres Enlazadas/Aliadas Intern, June–August, 2009

Abstract:

The internationally accepted standard for cesarean section rates per percentage of live births per country, as outlined by the World Health Organization and the Pan American Health Organization, is between 10-15% of the country's birth rate.ⁱ Mexican national health care data from 2006 estimates the cesarean section rate to be at around 37.6% of all births.ⁱⁱ This makes Mexico one of the highest users of cesarean section in the Americas and the world. High rates of cesarean section increase the health risks for both mothers and children.ⁱⁱⁱ This paper will explore the reasons why cesarean sections have become so prevalent in Mexico. In doing so, it will consider the clinical, financial, and psychosocial factors that contribute to Mexico's overutilization of cesarean section.

The use of cesarean section has been increasing steadily worldwide for the past two decades. Mexico stands out as a leader in the Americas and in the world for high use of cesarean section. While in many cases cesarean sections can save lives and reduce birth defects, in cases of misuse cesarean overutilization can lead to increased and unnecessary morbidity and mortality for both the infant and the mother^{iv}.

Appropriate Cesarean Section Rate:

The internationally accepted standard for cesarean section rates per percentage of live births per country, as outlined by the World Health Organization and the Pan American Health Organization, is between 10-15% of the country's birth rate.^v While this rate was decided upon in 1985, it is still seen as the accepted standard for appropriate cesarean section rate internationally.^{vi} In 1991, The Mexican Official Standard for the Care of Pregnancy, Delivery, Puerprum and Newborns stated that the ideal rate for the country should fall around 20% of the national birth rate; however the actual rate is still much larger.^{vii}

Cesarean Section Rates in Mexico:

Throughout the 1990s, the national cesarean section rate was projected to be around 30% of all births within hospitals.^{viii} Between 1995-1996, the cesarean rate was calculated at 31.3%^{xii} and by 1999, the national cesarean section rate was slightly above 35% of births with 53% of births in the private sector being by cesarean section, followed by social security or public institutions, with a rate of 38.2% of births.^{xiii} This upwards trend has continued within the past decade, with cesarean section rates rising from 32.53% in 2001 to 36.42% in 2005.^{xiv} The most recent national data available from 2006, estimates the national cesarean section rate to be 37.6% of all births.^{xv}

Medical Dangers for the Mother and Child:

While the use of cesarean section is crucial for safely delivering complex and high risk births, its overuse is dangerous and potentially harmful to both the mother and child.^{xvi} A study by Waterstone et al, found that cesarean section quadruples a mothers risk for morbidity compared to vaginal birth.^{xvii} According to the *World Health Organization's 2005 Global Survey on Maternal and Perinatal Health in Latin America*, which included Mexico, cesarean delivery was positively and significantly associated with severe maternal morbidity and mortality compared to vaginal birth, even after adjustment for confounding risk factors.^{xviii} Cesarean section is major abdominal surgery, and like any large surgery, it increases the risk for medical complications and death for the mother. There are often complex long term and short term complications from a cesarean section. Common short term complications for cesarean section include excessive blood loss, blood clots, infection, injury to bladder, bowel or adjacent organs, pulmonary embolism, and fever, while long term complications can include infertility, ectopic pregnancy, miscarriage, placenta accrete, placenta previa, and death.^{xix}

Cesarean delivery also comes at high risk to the baby. Cesarean delivery was associated with increased fetal mortality rates and higher admittance into intensive care for 7 days or longer, even after adjustment for preterm delivery.^{xx} A study by MacDorman et al, concluded that the neonatal mortality rate for infants delivered by cesarean section (1.77 per 1,000 live births) was higher than vaginal delivery (0.62 per 1,000 live births).^{xxi}

Reasons for Cesarean Section in Mexico:

On a national level, the reasons given by a provider for why a cesarean section was given between 1998- 2001 included dystocia (32.3%), previous cesarean section (15%), fetal distress

(15%), breech presentation (8.5%), maternal request (6.3%), emergency (3.1%), other (19.7%).^{xxii} While many of these issues occur naturally, some occur more frequently because of the use of other medical technologies to aid in birth. Additionally, many times the reason given by the physician on the patient's medical record as the reason for a cesarean section is not actually a medically appropriate reason to induce cesarean. An interview with a private practice gynecologist in Monterrey, Mexico elicited the following response, "Any doctor who says he doesn't do unnecessary cesareans is lying." He continued, "And they also lie about the number they are doing."^{xxiii}

Factors influencing the increase in cesarean section rate:

Many variables have contributed to the increase in cesarean section in Mexico including clinical/medical factors, financial factors, and psychosocial factors.

Clinical/ Medical Factors:

In many circumstances, the increased use of medical technology to aid in birth can change and alter the natural process of birth such that a cesarean section may be necessary. This section will explore the clinical and medical factors that can influence cesarean section rates such as oxytocin/pitocin use, use of electric fetal heart rate monitors, previous cesarean section, and the patient's failure to progress.

Use of Pitocin/ Oxytocin to induce labor:

Oxytocin is released naturally in labor when the baby produces pressure on the cervix and pelvic floor tissues. Hormone bursts induce the contractions of labor which aid in cervix dilation and baby movement, and can limit blood loss.^{xxiv} In the hospital, the drug Pitocin (synthetic oxytocin) is given to patients to induce the same contractions created by oxytocin secretion. The

World Health Organization and the Pan American Health Organization support minimizing pitocin use during labor stating, “The induction of labor should be reserved for specific medical indications. No region should have rates of induced labour higher than 10%.”^{xxv} However, very few people follow this standard. Research on obstetricians in Mexico City has shown that pitocin is given to the majority of mothers who come into the hospital to speed up and to regulate delivery.^{xxvi}

The naturally occurring hormone, oxytocin, is released in bursts as opposed to synthetic pitocin which is administered at constant rate through an intravenous drip. This difference in hormone level and rate leads to differences in contractions experienced between ones that are induced by oxytocin and pitocin.^{xxvii} Pitocin use can create circumstances in which a cesarean section may be needed. The WHO 2005 Global Survey on Maternal and Perinatal Health found that 28% of women with induced labor had to have an emergency cesarean section.^{xxviii} Another study found that 19% of nulliparous women who were given pitocin compared to 10% of nulliparous women who were having natural contractions underwent cesarean sections.^{xxix} This study also found that labor induction (pitocin drip) caused an increase in the risk of instrumental delivery and shoulder dystocia. Another study, which traced 65,000 births, found that labor induction also increased cesarean rates in nulliparous women, with relative risks of cesarean delivery with labor induction 1.38 for nulliparous women, compared to 1.0 for parous women with no previous cesarean.^{xxx} A study by Cammu et al. found similar conclusions regarding a correlation between labor induction and cesarean section. This research also concluded that significantly more mothers who were induced using Pitocin had first-stage dystocia (which later required cesarean section).^{xxxi} Induction of labor can also lead to decreased uterine blood flow,

hyperstole, hypostole, and uterine hypertonia. These situations can later cause premature separation of the placenta, fetal distress, rupture of the uterus, and hemorrhaging which require cesarean section^{xxxii}.

Electric Fetal Heart Monitors (EFM):

The electronic fetal heart monitor is another example of medical technology that is often overused in Mexico. This overuse can increase the number of cesarean sections performed. The electronic fetal heart monitor is now considered the standard of care to evaluate fetal health during labor.^{xxxiii} EFM is used routinely on all high risk pregnancies throughout Mexico and when resources are available, EFM is used as a monitoring device on low risk pregnancies.^{xxxiv}

While intrapartum fetal surveillance can be useful in high-risk pregnancies, it should be used only within this high-risk context because overuse can be problematic due to common technological defects of the electronic fetal heart rate monitor. Banta et al summarizes, “there is, at best, limited evidence of the benefit of EFM, while there is substantial evidence of harm and significant financial costs. Although many physicians continue to use EFM.”^{xxxv} The harm that Banta et al. describes is the increase in cesarean section rate caused by electric fetal heart rate monitors. The World Health Organization outlines that there is little evidence for the positive effect of fetal monitoring and it should only be carried out in cases related to high perinatal mortality rates.^{xxxvi}

The correlation between cesarean section rate and EFM usage is caused by subjective interpretations of how to read EFM results and because the EFM often gives false positive readings of fetal distress. This causes doctors to suggest unnecessary cesarean sections and potentially may increase the cesarean section rate.^{xxxvii}

Cesarean Section in Previous Birth:

It is widely accepted among medical professionals that once a woman has a cesarean section she must continue to have cesarean sections. Roughly 15% of all cesarean sections in Mexico are performed because the mother had a prior cesarean section.^{xxxviii}

A second cesarean section is often recommended because doctors are fearful of scar rupture, and the liability thereof, if the mother were to deliver the baby naturally. However, according to the international conference on appropriate technology for birth, “There is no evidence that caesarean section is required after a previous caesarean section birth. Vaginal deliveries after a caesarean should normally be encouraged wherever emergency surgical intervention is available”.^{xxxix}

However, repeat cesarean sections are considered the standard of care for many medical practitioners in Mexico.^{xl} A Mexican national health survey found that 80% of women who had a cesarean section with their first birth had a cesarean with their second birth.^{xli} Use of cesarean section because past labors were cesarean section increases the number of unnecessary cesarean sections performed in Mexico and subjects women and babies to unnecessary health risks.

Dystocia (Failure to Progress):

One of the most common reasons doctors cite for reasons to induce cesarean section is failure to progress, or dystocia. Dystocia was responsible for 32.3% of all cesarean sections in Mexico between 1998 and 2001.^{xlii} Dystocia can occur due to uterine contractions that are not adequate to induce natural labor, cephalopelvic disproportion (when the woman’s pelvis is not large enough for a baby to pass through), malpresentation of the infant, or blockage of the birth

canal.^{xliii} Dystocia can be difficult to diagnose, and thus over-diagnosis of dystocia is often hypothesized to account for some of the increase in cesarean section rates.

A study in Los Angeles and Iowa found that 68% of all unplanned cesarean section were caused by dystocia. Additionally, this study found that many of these cases did not conform to the published standards for dystocia. For example 16% of the cesareans performed due to lack of progress were technically still in the latent phase of labor according to ACOG outline criteria. Similarly, 36% of cesarean sections that were outlined as not progressing did not, in reality, have a prolonged second stage of labor according to outline standards.^{xliv} In Mexico, there are outlines for practitioners to determine when dystocia is occurring.^{xlv} However, this study suggests that even when there are clearly outlined criteria for diagnosing dystocia and guiding use of subsequent cesarean section, those guidelines are not necessarily followed. One may therefore conclude that a large number of cesarean sections in Mexico are given because of inaccurate categorizations of dystocia.

Financial Factors:

Many believe the increase in cesarean sections is influenced by the reimbursement structure for physicians who perform cesarean sections privately. The price of a cesarean section in 2001 was found to be between 3900-13000 pesos, which is roughly 520-1733 US dollars.^{xlvi} Physicians encouraging unnecessary cesarean sections in order to make a larger profit could be one factor that is contributing to the increase in the practice.

Additionally, private Mexican insurance companies have contributed to the cesarean section rate by historically only reimbursing for a cesarean section deliveries and not vaginal deliveries (however, this policy has recently changed).^{xlvii} This policy could have affected how

cesarean section is viewed for a generation of women and doctors. While reimbursement structures for private doctors and insurance companies may have influenced cesarean practices for the upper socio-economic brackets it still does not explain the increase in cesarean within the majority of the population that does not have insurance.

Psycho-social factors:

Besides monetary and medical factors, social and cultural ideas about cesarean section have been influential in making the practice of elective cesarean section socially and culturally acceptable and in some instances preferred as a mode of childbirth.

Acceptance of Cesarean Section as the Standard of Care:

Cesarean sections are becoming more popular within Mexican society because they minimize the pain associated with labor and can be scheduled to accommodate the needs of the family and the mother.^{xlviii} In higher socio-economic levels, cesarean sections are considered ideal for delivery and are often requested. There is a perception that cesarean births are the safest mode of birth available (not to mention convenient) and natural birth is considered dated or old fashioned.^{xlix} In some states within Mexico there is also a social weight associated with the luxury of having a cesarean section. An interview with an obstetrician in Monterey conveyed this notion, "My maid has natural births" he stated, "but Mrs. X of the upper class doesn't."¹ This perception of cesarean birth as the ideal mode of birth for upper class women supports the finding that the majority of births in private hospital settings are cesarean births^{li}

Doctor Convenience:

Recently, there has been increased discourse surrounding doctor convenience and how that impacts the use of cesarean section in birth choice. While it is important that doctors are able to

manage their stress as well as their work and home time, using cesarean section procedures as mechanism to relieve work stress and save time is not an appropriate use of their power as doctors.

A study focused on cesarean sections in the United States found there was temporal variation as to when a cesarean section was administered, implying that convenience for the obstetrician regulated when and if cesareans would be performed, and not medical necessity. For example, cesarean sections were most popular on Fridays and least common on Saturday and Sunday. This incidence reflects physician's control and suggests that doctors prefer to perform cesarean sections when the timing is convenient for them and thus to dissuade women from needing medical help in labor during times that are inconvenient (weekends). This study also found that holidays and the days surrounding holidays had fewer cesareans, presumably to aid in convenience of the medical practitioner.^{lii} The above research clearly indicates that oftentimes cesarean sections are suggested and administered when they are not medically necessary because they are easier or more convenient for the medical practitioner.

Medical and Gender Power Relations:

An analysis of gender power relations within Mexico may also help to explain the high rates of cesarean section. Traditionally, in Mexican culture, men seek to embody the concept of machismo, which expresses the characteristics of virility, power, and authority, whereas a Mexican woman's gender identity is often explained using the term "marianismo", which embodies the characteristics of moral purity, subordination to men, and caretaker of the family unit.^{liii} These gender relationships are important to understand within the context of cesarean

section in Mexico because, although more women are entering medical school in Mexico, the majority of practicing physicians are still male.^{liv}

A recent study in the United States found that minority women are more likely to give birth by cesarean section than white or Asian women, controlling for clinical indicators. Women who are unmarried and who have little education are more likely to have cesarean sections than women who are married and have high education levels.^{lv} This author credits stereotypes and social distance between the doctor and the patient for potential reasons as to why doctor convenience overrides patient care in these contexts.^{lvi} She also states that these patients may be more likely to not question the doctor's recommendations because of the power relationship between the patient and the provider.^{lvii} A study in Italy focusing on education and cesarean sections found that mothers with a primary degree had a 24% higher risk of cesarean section than mothers with a university degree when age, birth weight, and presentation were accounted for.^{lviii}

The way that social power relations impact cesarean section rates is a phenomenon that may be especially important when evaluating cesarean section in Mexico. Theoretically in a medical system where female patients are subordinate to male doctors, cesarean sections could be accepted in excess because of these gendered relations of power. When the doctor is clearly in power over the patient, the patient will be less likely to question a cesarean section if one is suggested, and in turn, the doctor may be more willing to perform a cesarean section because it is the easiest thing for him to do.

Conclusions:

The discourse surrounding the use and overuse of cesarean section as a method of birth is a complex and multi-faceted issue that is influenced by a wide variety of factors. The overuse of

cesarean section in Mexico is likely influenced by multiple medical, social, and financial factors. The medicalization of the birthing process through drugs and technology has significantly contributed to the large cesarean section rate. Financial incentives surrounding cesarean section as opposed to vaginal birth have also influenced the conversation of cesarean section. Last, psycho-social issues such as doctor convenience, patient doctor power relationships, and cultural acceptance have all contributed to the cesarean section rate in Mexico.

This problem of overuse and misuse of cesarean section in Mexico must be reduced in order to save lives of infants and mothers as well as reduce medical spending for the country and citizens of Mexico. It is estimated that in 1996, excessive cesarean section in Mexico was projected to cost public health-care institutions \$12,204,774 USD.^{lix} Since these public health-care institutions are partially, if not totally, funded by the government, the people and government of Mexico are losing millions of dollars each year in paying for unneeded cesarean sections.

Additionally, stricter guidelines related to pitocin and EFM's, as well as national standards about dystocia and the medical necessity of cesarean section, if they were followed, could help to greatly reduce the number of cesarean sections in Mexico. Finally, an increased focus on patient autonomy and the dangers of cesarean section for the infant and mother in public health campaigns could help to change the social factors which influence cesarean section rates. However, cesarean section overuse is so multifaceted that in order to reduce the rates in Mexico, a united effort must be shown by the government, the medical community, public health officials, patient's rights groups, and the mothers themselves for any substantial change to occur.

Acknowledgements:

I would like to thank Mujeres Enlazadas (<http://www.mujaerenlazadas.org/>), the University of Chicago Human Rights Internship Program, and Dr. Lianne Kurina for their guidance and support on this project and throughout the summer.

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- ^{lix} Gonzalez-Perez, 64.