Power Structures and Political Ideologies Reflected in C-Section Rates in Brazil:
An Analysis Using Langdon Winner's Theory of Technological Politics

STS Research Paper
Presented to the Faculty of the
School of Engineering and Applied Science
University of Virginia

By

Hunter L. Newland

March 14th, 2021

On my honor as a University student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments.

Signed: _____Hunter Newland_____

Approved: _____ Date _____
Benjamin J. Laugelli, Assistant Professor, Department of Engineering and Society

Introduction - Problem Frame

Cesarean sections (C-sections) are a surgical operation for delivering an infant by making an incision through the abdomen and uterus of the mother. This surgical technology has a long history, being recorded in early Hindu, Egyptian, Grecian, and Roman folklore. C-section procedure has historically been utilized to save the child when the natural birth becomes fatal for the mother; this is still true today but current techniques also aim to prevent maternal mortality. C-sections are highly dangerous and are primarily used in possibly fatal, emergency situations. In the country of Brazil, the amount of births conducted using the C-section technology is staggeringly higher than the recommended percentage of 10-15% put forth by the World Health Organization (WHO). In 2018, the average global C-section rate was 18.7%, where the highest global percentage was calculated in South America at 42.9% (Rudey et al., 2020). For comparison, Brazil's C-section rate in 2018 was found to be 55.9% (Rudey et al., 2020).

Professionals and scholars have done some research into why this number is shockingly higher than the recommended rate and global average. Some studies, like one conducted by do Carmo Leal et al. (2012), have elucidated some demographic factors that influence whether a woman will get a C-section during their birthing process. These factors include: higher income level, higher education level, and whiter racial identity (do Carmo Leal et al., 2012). These demographic identifiers are helpful for modeling and understanding the accessibility and usability of C-sections in Brazil, but fail to uncover more meaningful conclusions. All current studies focus on finding the factors and demographic identities that are correlated with higher C-section uptake, but do not explore how the use of C-section as a technological tool reinforces power structures and oppresses particular groups in the population of Brazil. If we continue to overlook the power structures and mechanisms behind the widespread desire to obtain a

C-section, we will continue to oppress, restrict, and endanger the pregnant population in Brazil. The high rate of C-sections in Brazil demonstrates the inequalities between gender, race, and socioeconomic status that pervade the country. Employing Langdon Winner's (1980) Theory of Technological Politics, I will expose the political ideologies and racial power structures that influence the high rate of C-sections across the country of Brazil and subsequently create hierarchies and divides between identity groups. This exposition will be executed using the available research studies on the motives behind high C-sections in Brazil, Brazilian history of patriarchy, and known racial inequalities within the country.

Background

Health Information on C-Sections

As aforementioned, a C-section is a surgical procedure that makes a cut through the abdomen and uterus of the mother, typically used in emergency birth situations in order to prevent loss of infant or maternal life. Cesarean sections are used in emergency situations only because they are considered dangerous for the mother and child. Malloy et al. (2009) found that C-sections are beneficial for preterm births but are damaging for normal, low-risk births. It was additionally concluded that C-sections are associated with higher infant mortality and morbidity, higher rates of fetal hospitalization, and higher maternal mortality and morbidity (Malloy, 2009).

Gender & Race Ideologies in Brazil

Separately, I want to give a brief overview of gender and race discrimination in the country of Brazil. Brazil has a long history of patriarchal, masculine laws and social norms that influence what gender roles look like in everyday life (Besse, 2018). For context, there were labor laws in the 1900's that did not allow women to work in any field besides domestic work (Besse, 2018). Simultaneously, non-domestic job fields would have a panoply of maternity leave

benefits, encouraging women to leave the workforce and reproduce (Besse, 2018). This long foundation of masculine priority and control is important when it comes to discussing childbirth, maternity, and the female body later in this paper. Additionally, similar to the United States, the *branco* (white) population in Brazil is considered the most privileged of the racial identities, with *preto* (black) overwhelmingly being the most marginalized group.

Literature Review

While several scholars have examined the high rate of C-sections in Brazil, there is still no complete explanation on the reasonings behind them. Furthermore, scholars have not yet adequately developed a solution to reduce the excessive number of C-section births.

A study conducted in 2012 by do Carmo Leal et al. aimed to collect insight into the factors that drive the use of the C-section as a childbirth pathway across the country of Brazil. Firstly, this study found that while 70-80% of the pregnant population in one state desired a vaginal birth at the beginning of their pregnancies, at the end of their pregnancy only 30% still desired this type of childbirth, and further, only 10% actually had vaginal births (do Carmo Leal et al., 2012) . The surveys and interviews demonstrated that this drop in vaginal birth occurrence and rise in C-section births was connected to the increase in medical care coverage campaigns across the country, higher education level of the mother, *branco* ethnicity, higher socioeconomic status, and adequate antenatal care. While this study identified some possibilities of the usage of C-sections, it mostly discusses the poor health outcomes associated with excessive C-sections as most journals on this topic do.

In an attempt to combat the lack of inequality analysis in previous research like the study conducted by do Carmo Leal et al., a study conducted by França et. al attempted to quantify several factors that may contribute to health inequity in maternal care in the Brazilian SUS

(Unified Health System) (França et al., 2016). This study evaluated multiple types of maternity care options, including the rate of C-section birth, in relation to socioeconomic status, which in Brazil is known to favor whiter ethnicities. The conclusions from this study showed that the inequalities of other types of maternal care tended to decrease overtime with the inclusion of the public health care system but the inequalities in C-section availability and uptake were still increasing over time. The study, like the one conducted by do Carmo Leal et al., did not come to any definite conclusion as to the mechanisms that drive these inequalities, just that they occur and are correlated with specific demographic factors. My research fills this gap by analyzing the social conditions and politics of the C-section that create these inequalities and single out the demographics identified by these researchers.

Conceptual Framework

My analysis of the significantly high rate of C-sections in Brazil draws on Langdon Winner's (1980) Theory of Technological Politics, which allows me to elucidate the political motivations behind the use of this technology across the country of Brazil. Technological Politics is a conceptual framework that is applied to sociotechnical situations that are influenced by a technological artifact. Technological Politics posits that technological artifacts are political in themselves and fall into one of Winner's two categories: 1) technological artifacts that are used to solve a community situation, or 2) technological artifacts that are man-made systems that align very closely with a particular political affiliation (Winner, 1980). Since the C-section is a procedure developed in an attempt to preserve human life during emergency births, a community-wide problem, it is capable of fulfilling the requirements of the first category. Therefore, using Winner's (1980) Technological Politics framework is appropriate for my technological artifact, the C-section. As a framework, Technological Politics allows for the

analysis of a technology's characteristics and how these characteristics work politically instead of reducing the technology's influence to the "interplay of social forces" (Winner, 1980). To this end, Technological Politics evaluates how the "technological deck has been stacked long in advance to favor certain social interests," and the impact of the "better hand" and who it gets dealt to (Winner, 1980). This function of Technological Politics is important for this research paper because Brazil's social interests have been implemented based on masculine hegemony which directly impacts certain groups of users more negatively than others. Furthermore, the politics of a technology can be uncovered by understanding how a technology is inherently political. One claim that Winner (1980) summarizes is that a technological artifact "requires the creation and maintenance of a particular set of social conditions as the operating environment" of that technology. Therefore, not only does Technological Politics consider the societal environment's impact on the creation of a technology but how that technology, as a political item itself, fulfills preceding political agendas or creates new ones. The use of the C-section in Brazilian hospitals is a result of a "particular set of social conditions" that create hierarchies and power dynamics within Brazilian culture. Technological Politics allows examination of these social conditions in relation to technological artifacts in order to link them to ways of establishing hierarchical dynamics and the aftermath of these dynamics on the "quality of human associations" (Winner, 1980). The novelty of my research problem is the elucidation of the power relationships, established using the C-section technology, that create and enforce injustice and inequality among the people of Brazil. In the analysis that follows, I will demonstrate the sociocultural and political agendas that are reinforced and recreated by using C-sections as an elective delivery option and how this technology functions to discriminate and enact violence against particular groups of people. I will utilize Technological Politics by discussing C-section

as a political tool, and how this technology enforces gender-based, racial, and doctor-patient hierarchies.

Analysis with Technological Politics

C-section as a Political Tool

As previously mentioned, the C-section is a technological artifact that was designed to solve a community situation. Therefore, intentionally or unintentionally, it has the ideologies and politics of a society built into it. Politics in this case refers to the "arrangements of power and authority in human associations as well as the activities that take place within those arrangements" as defined by Winner (1980). In this section, I will evaluate the arrangements of power and authority that are implanted and overlaid onto the C-section in the country of Brazil. A major contributor to the overall politics of the C-section is the overwhelming presence of paternalistic, masculine dominance in social settings. This dominance is a result of years of compounded masculine hegemony, exemplified by the lack of female representation in government, history of women in domestic style jobs, and the societal fascination with the beautification of the female body (Besse, 1996; Fernandes, 2012).

The main patriarchal factor in the case of the C-section is the social surveillance of the feminine body. First, the ideal body image of a Brazilian woman is typically consistent of a large chest, small waist, and a large bottom and hip area combined with a small European nose, bronze skin, and an overall "thinness" (Madruga et al., 2010). This is a very hard body type to achieve, and some may even call it unrealistic. Due to this, women in Brazil have an incredibly high bodily dissatisfaction rate, which alludes to the high number of plastic surgeries that occur on a national scale (Batista, 2017; Laus et al., 2014). Fixing a body cosmetically is arguably an attempt to become more socially presentable to other people in the surrounding cultural climate.

Additionally, the tools used to measure things like body dissatisfaction are specifically targeted towards women, with the tools for male body dissatisfaction being created within just the last decade, proving there is a greater responsibility of women to look and present themselves to society in a particular way (Laus et al., 2014). This is a direct result of the patriarchal "male gaze" that the Brazilian society relies on to judge what is beautiful and acceptable. Going a bit deeper into the impact of the male gaze, determining what is beautiful and acceptably feminine also means determining the type of body that is sexually useful to the male population. This directly impacts the cultural conception of giving birth through the misconception that the female anatomy is permanently damaged after childbirth and less capable of pleasuring a sexual partner. Women in research studies have expressed this concern when desiring a C-section, stating that they were afraid of a natural birth giving them permanent lesions that would ruin their sexual potential with their husbands, which is why they chose the "cut above" (a C-section) to avoid this type of damage (Souza, 1994). Another study by Béhague et al., built off of previous studies related to sexual unusability, found that women in Pelotas, Brazil named "vaginal trauma" as a reason for avoiding a natural birth and obtaining a C-section (Béhague et al., 2002). Therefore, the excessive use of the C-section is a way of keeping women as objects used for male gratification, sexually and visually, which is a extension of oppression and discrimination of the maternal population. This is just one way that the patriarchal politics of a C-section get used to reinforce pre-existing social ideologies of body image and sexuality. C-section is therefore a technology that purposefully controls the bodily autonomy of a woman during childbirth through the social conditions contained within the C-section itself and its employment in the maternal health care system. Further, C-section functions by using these foundational values to create

hierarchies between genders, reinforce gender roles, and even extends these power structures to socioeconomic status and race.

C-Section & Hierarchies

Gender Hierarchies

Using the foundational, patriarchal values that imbue the C-section technology with the ability to act as a political tool, the C-section establishes power dynamics between the male and female genders. The importance of the Brazilian beauty standard, enforced through social conditions and cultural implementation, has allowed the C-section to manipulate the choice of a woman when determining the best option for childbirth. As aforementioned, the choice to undergo a C-section relies heavily on the possible damage to outer aesthetics and the sexual potential of the mother after childbirth (Béhague et al., 2002; Souza, 1994). This influence derives directly from the paternalistic structure of Brazilian society, where the "model of family relations [is] very influential in idealizations, …, of association and power", and therefore acts to oppress women and exclude them from the determination of body image, beauty standards, and sexuality in Brazilian culture (Borges, 1993). To clarify, by partaking in the C-section for fear of being sexually unusable or being displeasing to the male gaze, the C-section reinforces the power of the masculine dominance in society and further marginalizes women. Therefore, through the lens of Technological Politics, the C-section widens the gender discrimination gap, excludes women from participating in sexuality and gender discourse, and bolsters pre-existing concepts of women, feminine beauty standards, and the usefulness of the female body in society.

Racial & Socioeconomic Hierarchies

The C-section functions similarly with regard to racial identity and socioeconomic status within the female population. A study conducted by Rudey et al. aimed to explain the high CS

rate in Brazil and compare these rates in areas that were identified as high or low human development index (HDI) in Robson classification groups, the common pregnancy classification groups. The conclusion in this research study found that areas with a higher HDI had a higher C-section rate than areas with a lower HDI (Rudey et al., 2020). A higher HDI rating in Brazil is connected with "better economic development" and more frequent usage of the private health sector. Private health care is more commonly associated with whiter ethnicities, higher education, and higher socioeconomic status (Malta et al., 2017). This is summarized in *Figure 1*, consisting of a HDI map (right), racial distribution map (middle), and income level spread map (left), which showcases through graphical color differences that lower HDI, lower income status, and Brown and Black racial identity all have the same geographical distribution. While this means that the HDI is in itself a tool of inequality, it also helps visualize the social and geographical landscape that is impacted and marginalized by the excessive usage of the C-section. The high use of C-sections in private health care, which is most accessible to whiter ethnicities, reinforces the societal myth that C-sections are a better standard of medical care, which in turn posits that the population who accesses this technology is being treated better in the healthcare system. Since the majority of the women who receive C-sections in the private sector are of *branco* (white) ethnicity, this directly establishes a power structure that places *pardo*

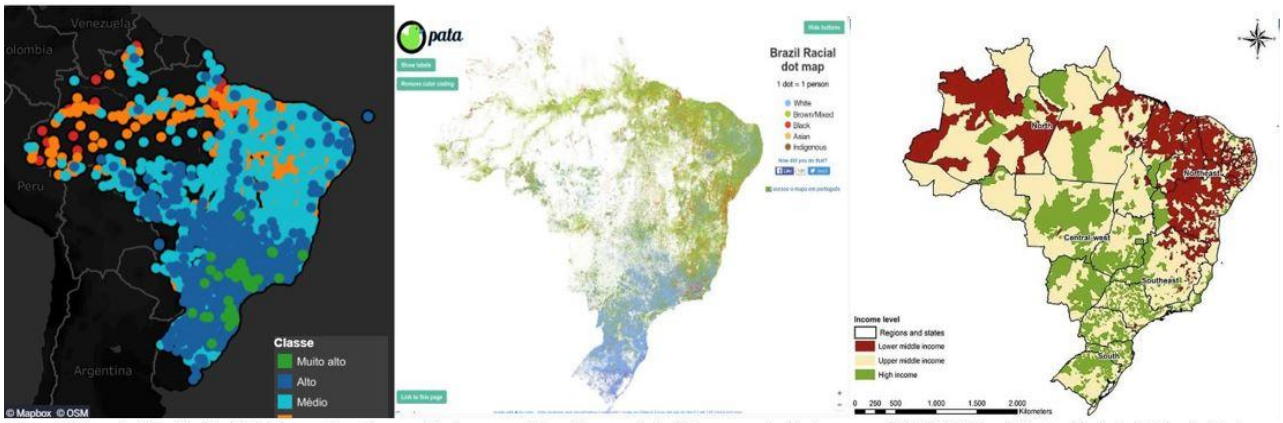

Figure 1: From Left to Right: A) A Human Development Index map of Brazilian municipalities, green indicates a very high HDI, blue indicates high, light blue indicates medium, orange represents low HDI, and red represents very low HDI (Oliveira, 2013); B) Racial identity distribution map of Brazil, blue represents the white population (Blanca) of Brazil and green represents brown/mixed (Parda) and red represents the Black population (Pretos) (Pata Racial Map, n.d.); C) Income distribution map of Brazil, green represents high income, tan represents upper middle income, and red represents lower income (Gabe Hanson, personal communication, September 22nd, 2020).

(brown/mixed) and *preto* (black) groups in a lower standing on the hierarchical scale of race by supporting the socioeconomic hierarchy of these racial groups in relation to one another. Therefore, the C-section as a technological artifact adheres to Winner's (1980) framework by working politically to legitimize and extremify racial and socioeconomic hierarchy in the country of Brazil.

Westernization & Medicine

The C-section is a technology that has been adopted by Western medicine and the world of global maternal health. Firstly, Western medicine has been analyzed by a multitude of anthropology and sociology scholars in order to uncover the violence that Western medicine enacts on other groups of people around the globe and the motives behind this oppression. Most scholars have come to the conclusion that Western medicine intrudes upon a person's autonomy and individuality and reduces the individual to the global understandings of biomedicine (Gordon, 1988)**.** In accordance with the capability of science and medicine to be reductionary, Western medicine and science are discussed as being the source of "life saving knowledge" for the entirety of the human population (Pigg, 2001). The view of science and medicine as a universal cure and an omniscient entity gives medical professionals the ability to claim authority and infallibility in their interactions with patients. Simultaneously, the overwhelming trust of the medical professional invalidates the opinion and belief of the patient or the cultural group the patient comes from (Pigg, 2001). In the case of C-sections in Brazil, this doctor-patient hierarchy gets utilized to benefit the doctor and subjugate the patient. Notably, C-section procedures take 1-3 hours on average, which is about a quarter of the time it takes to undergo a vaginal birth (Spencer & MacLennan, 2001; *Stages of Labor and Birth: Baby, It's Time! - Mayo Clinic*, n.d.). This means that the money made by a doctor performing one vaginal birth could be quadrupled if

that doctor schedules back-to-back C-sections instead. Moreover, the ability to schedule a C-section inherently benefits the doctor over the patient because it allows the doctor to work their preferred hours and avoid night shifts. Therefore, C-sections are fundamentally more convenient for doctors than vaginal births. Referring back to the literature review, do Carmo Leal et al. (2012) found that 70-80% of women desired a vaginal birth before the process of childbirth began, and only 10% had vaginal births at the end of pregnancy. The convenience and monetary opportunity given by the C-section technology may explain the excessive recommendation and performance of C-sections in the country of Brazil demonstrated in do Carmo Leal's (2012) study. Framing this using Technological Politics, we can see that the motives of the doctor create a system of authority in a childbirth situation by drawing on previously established notions of medicine and universal validity of medical professionals. Henceforth, the asymmetrical system of authority between doctor and patient is detrimental to the maternal population in deciding what birthing procedure is most desirable to them (Morris, 2016). This is an unfair and oppressive dynamic created by the politics of the C-section, the environment the C-section was created in, and the environment it is presently used in. In conjunction with the previously determined social conditions that establish power structures related to race and gender, the overwhelming influence of the Western medical world, the blind trust in medical professionals, and the unbalanced authority dynamic between patient and doctor contribute to the politics held within the C-section technology.

As I have argued, C-section technology functions as a technological artifact through the reinforcement of patriarchal societal conditions, the creation and extremificaiton of racial and gender hierarchies, and the authority of medicine and science in doctor-patient interactions. Subsequently, the high rate of C-sections is a direct relation to these political functions. Some

may think that women experience a high rate of C-sections in Brazil because doctors are eager to please patients. This counter-argument fails to take into account the hierarchical relationship between the patient and the doctor. Studies have found that women who are in the midst of labor and request a C-section may experience distrust, verbal abuse, and poor action of the physician based on the patient's race, gender, and previous birthing experience (Béhague et al., 2002). Concurrently, some medical staff have reported that a mother's screaming during childbirth was "[indicative] of a psychological preparation for birth and even desire for the child" (Béhague et al., 2002). The bias and dejection contained in the opinions and actions of medical staff is a primary indicator that mothers are highly discriminated against even during their own process of childbirth.

Conclusion

In this paper, I have utilized Winner's (1980) framework of Technological Politics to analyze the high rates of C-section deliveries in Brazil. As previously mentioned, the C-section has been created with a set of paternalistic politics that repress the female population during childbirth. The pervasiveness of the male gaze and masculine dominance in Brazilian society is a driving force behind the maternal desire to use the C-section in an effort to remain an aesthetically and sexually acceptable part of society. Consequently, C-sections create hierarchies between gender identities through patriarchal foundations and cultural influences. The C-section also creates and exacerbates hierarchies and divides between racial identities. The correlation between white racial identity, higher rate of C-section, and higher socioeconomic status is a powerful argument that explains the significant difference in uptake between racial groups. These hierarchies and political agendas are supported by the universal belief in the validity of Western medicine and science. The professionals in the world of medicine and science use this

universality to their own advantage in maternal health care appointments by recommending C-sections to vulnerable mothers. These factors all contribute to the political role of C-section, elucidated using Technological Politics, in Brazil and the overall exclusion and marginalization of women, pregnant women, and pregnant women of color. This is significant because it represents the widespread inequalities of the country of Brazil that violently harm the female and maternal population, which are important to understand if a future solution is going to be implemented in order to prevent unnecessary violence, dismantle power structures, and strive for a more equitable use of this technology.

Word Count: 3732

Citations

Batista, B. N. (2017). State of Plastic Surgery in Brazil. *Plastic and Reconstructive Surgery Global Open*, *5*(12). https://doi.org/10.1097/GOX.0000000000001627

Béhague, D. P., Victora, C. G., & Barros, F. C. (2002). Consumer demand for caesarean sections in Brazil: informed decision making, patient choice, or social inequality? A population based birth cohort study linking ethnographic and epidemiological methods. BMJ (Clinical research ed.), 324(7343), 942–945. https://doi.org/10.1136/bmj.324.7343.942

Besse, S. K. (2018). *Restructuring Patriarchy: The Modernization of Gender Inequality in Brazil, 1914-1940*. UNC Press Books.

Borges, D. (1993). Salvador's 1890s: Paternalism and Its Discontents. Luso-Brazilian Review, 30(2), 47-57. Retrieved April 23, 2021, from http://www.jstor.org/stable/3513953

do Carmo Leal, M., da Silva, A. A. M., Dias, M. A. B., da Gama, S. G. N., Rattner, D., Moreira, M. E., Filha, M. M. T., Domingues, R., Pereira, A. P. E., Torres, J. A., Bittencourt, S. D. A., D'orsi, E., Cunha, A. J., Leite, A. J. M., Cavalcante, R. S., Lansky, S., Diniz, C. S. G., & Szwarcwald, C. L. (2012). Birth in Brazil: National survey into labour and birth. *Reproductive Health*, *9*, 15. https://doi.org/10.1186/1742-4755-9-15

Fernandes, Sabrina (2012). Dilma Rousseff and the Challenge of Fighting Patriarchy Through Political Representation in Brazil. Journal of International Women's Studies, 13(3), 114-126.

França, G. V. A., Restrepo-Méndez, M. C., Maia, M. F. S., Victora, C. G., & Barros, A. J. D. (2016). Coverage and equity in reproductive and maternal health interventions in Brazil: Impressive progress following the implementation of the Unified Health System. *International Journal for Equity in Health*, *15*(1), 149.

https://doi.org/10.1186/s12939-016-0445-2

Gordon, D. R. (1988). Tenacious Assumptions in Western Medicine. In M. Lock & D. Gordon (Eds.), *Biomedicine Examined* (pp. 19–56). Springer Netherlands. https://doi.org/10.1007/978-94-009-2725-4_3

Laus, M. F., Kakeshita, I. S., Costa, T. M. B., Ferreira, M. E. C., Fortes, L. de S., & Almeida, S. S. (2014). Body image in Brazil: Recent advances in the state of knowledge and methodological issues. *Revista de Saúde Pública*, *48*(2), 331–346. https://doi.org/10.1590/S0034-8910.2014048004950

Madruga, S. W., Azevedo, M. R. de, Araújo, C. L., Menezes, A. M. B., & Hallal, P. C. (2010). Factors associated with weight loss dieting among adolescents: The 11-year follow-up of the 1993 Pelotas (Brazil) birth cohort study. *Cadernos de Saúde Pública*, *26*, 1912–1920. https://doi.org/10.1590/S0102-311X2010001000007

Malloy, M. H. (2009). Impact of Cesarean Section on Intermediate and Late Preterm Births: United States, 2000–2003. *Birth*, *36*(1), 26–33. https://doi.org/10.1111/j.1523-536X.2008.00292.x

Malta, D. C., Stopa, S. R., Pereira, C. A., Szwarcwald, C. L., Oliveira, M., Reis, A. C. dos, Malta, D. C., Stopa, S. R., Pereira, C. A., Szwarcwald, C. L., Oliveira, M., & Reis, A. C. dos. (2017). Private Health Care Coverage in the Brazilian population, according to the 2013 Brazilian National Health Survey. *Ciência & Saúde Coletiva*, *22*(1), 179–190. https://doi.org/10.1590/1413-81232017221.16782015

Morris, T. (2016). *Cut It Out: The C-Section Epidemic in America*. NYU Press.

Pigg S. L. (2001). Languages of sex and AIDS in Nepal: notes on the social production of commensurability. Cultural anthropology : journal of the Society for Cultural

Anthropology, 16(4), 481–541.

Rudey, E. L., Leal, M. do C., & Rego, G. (2020). Cesarean section rates in Brazil. *Medicine*, *99*(17). https://doi.org/10.1097/MD.0000000000019880

Souza, C. (1994). C-Sections as ideal births: The cultural constructions of beneficence and patients' rights in brazil. Cambridge Quarterly of Healthcare Ethics, 3(3), 358-366. doi: 10.1017/s096318010000517x.

Spencer, M. K., & MacLennan, A. H. (2001). How long does it take to deliver a baby by emergency Caesarean section? *The Australian & New Zealand Journal of Obstetrics & Gynaecology*, *41*(1), 7–11. https://doi.org/10.1111/j.1479-828x.2001.tb01287.x

Stages of labor and birth: Baby, it's time! - Mayo Clinic. (n.d.). Retrieved March 14, 2021, from https://www.mayoclinic.org/healthy-lifestyle/labor-and-delivery/in-depth/stages-of-labor/art-20046545

Winner, L. (1980). Do Artifacts Have Politics? Daedalus, 109(1), 121-136. Retrieved March 16, 2021, from http://www.jstor.org/stable/20024652