

MATERNAL MOTIVES BEHIND ELECTIVE CESAREAN SECTIONS

by

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ABSTRACT

The WHO recommends a target cesarean section rate of 10-15% of all births. In recent years, the US has a rate of 30.3% and some other developed countries are even higher. Scholars have argued that as a result of the complicated and relatively risky way humans give birth, humans benefit from assistants providing both logistical and emotional support (Rosenberg and Trevathan, 2002). My hypothesis is that women who are more likely to elect cesarean section for non-medical reasons do so at least in part because of unallayed fears and anxieties.

My study investigates women's birth preferences and attitudes towards birth. My sample was young, American women who have not previously given birth but who may in the near future (N = 368). Those who reported a preference for cesarean section were more likely to be extremely fearful of birth (43.9%) than those who reported a preference for vaginal delivery (20.6%). 73.2% of the cesarean section group state that fear is what influenced their birth preference, 9.8% said their fear had no influence, while in the vaginal birth group 18.9% said fear influenced their birth preference and 53.7% said it did not.

In my sample, women likely to elect cesarean sections in the absence of medical necessity are motivated at least in part by fear. They report more extreme fear than the group anticipating non-surgical delivery; it is more likely that fear influences their birth decision. This study provides a better understanding as to why women actively elect cesarean sections and offers productive low-tech and inexpensive ways to address their fears.

Chapter 1

INTRODUCTION

Human Birth

Childbirth is a unique and complex experience for human beings. It can be an incredibly intense and sometimes even risky event for women and their infants. This experience has been influenced by millions of years of human evolution and the reshaping of the female pelvis. Briefly, the human skeletal structure went through a series of modifications to accommodate habitual bipedalism (walking upright on two legs and feet). These changes included upper-body stability and increased lumbar lordosis in the spine (Whitcome et al., 2007), more stable and less flexible feet, and a complete reconfiguration of the pelvis, among many other changes (Washburn, 1960). For women, however, their bodies had to balance the requirements of standing and walking on two feet along with the need to birth children with large brains (Trevathan, 1987) and broad shoulders (Rosenberg and Trevathan, 2000). These functions shaped the female pelvis to accommodate both necessary functions (finding a balance between a pelvis spacious enough to give birth, but not so spacious that it would hinder physical activities) and resulted in a birth canal that accommodated large brained babies, however not without difficulties and pain (Trevathan, 2010).

All of these functions, the shift towards bipedalism, the increasing brain size, and the broadening of the shoulders, have shaped the ways in which humans give birth (Trevathan, 1987). Because of the configuration of the pelvis and the large brain and big body of the infant, not only is passing through the birth canal a tight fit for the

infant, but it must generally also go through a series of rotations in order to successfully exit the womb (Rosenberg and Trevathan, 2002). This extra rotation usually results in an occiput-anterior presentation of the infant, meaning that the baby is facing away from the mother, once again making birth significantly more difficult for human beings than it is for other animals- whose infants often face towards them, so that they can reach down, coax them and left them out themselves (Rosenberg and Trevathan, 2002). Due to this tight fit, series of rotations, and presentation and exceptional helplessness of human infants (another result of the evolution of our brain and behavior), it is beneficial for humans to have assistance in birth. Fortunately, cooperative behavior is characteristic of our species.

As a hyper-social species, it makes sense that birth for us is just as much a cultural event (full of rituals, customs, and traditions) as it is a biological event. Other animals are not only capable of giving birth alone, they often fare better giving birth alone because it is safest as it will reduce risk by protecting their infants from potential danger such as predators or interference from conspecifics (Jolly, 1973). Humans are quite the opposite. Our large brains may make birth more difficult, but they also provide us with the ability to engage in complex behavior and social and emotional support systems that can help us to mitigate the risks in this difficult process. It is exactly because of this that humans have evolved to become accustomed to assistance and support in birth, which is the “norm” in all cultures (Rosenberg and Trevathan, 1995). As Rosenberg puts it, “Cooperative behavior during and after birth accompanied the origin of the fully modern human mechanism of birth” (Rosenberg, 1992, p. 89).

Generally, this assistance has proved to increase the likelihood of a successful delivery for women and children. However, with changing ecological factors such as diet and environment (throughout the agricultural revolution), health declined and birth became riskier for humans (Wells, 2012). Essentially, although for most of human history there were risks associated with birth, these risks have probably been exacerbated by current contemporary issues and are greater now than they ever have been before (Wells, 2012). It is in these instances where birth becomes more risky that serious intervention is required. Today, in some societies for people with resources, we can mitigate these risks with intervention (though it is important to note that such interventions are only available to *certain* people in *certain* societies- an issue that will be discussed later in this thesis). In what follows, I will discuss the history, growing prevalence, and impacts of these interventions.

Cesarean Sections

In instances when birth was obstructed or stalled, physicians would often use tools such as forceps or even vacuum extractors to help deliver infants. However, these methods could be dangerous for the infant and the mother, especially upon repeated use in comparison to manual assistance (Gardella et al., 2001). Another surgical method used to deliver infants, which has rapidly become increasingly common in developed and wealthy countries, is the cesarean section. The origin of cesarean sections is deeply rooted in mythology for many cultures, and is most commonly (though erroneously) associated with the Romans (Weiner et al., 2008).

In its earliest stages intended use of cesarean section was to separate deceased mothers and their infants for the purpose of ceremonial burials or to save an infant in the event that their mother was unable to deliver them (due to the fact that they were

either already dead or in the process of dying); unfortunately, it was still a dangerous procedure and could not do much in the way of saving the lives of mothers (NIH, 1998). Over time, however, with the urbanization and growth of hospitals in Western countries (Europe, North America), as well as the development of Western medicine (the widespread availability of antibiotics), these procedures began to be performed more regularly; they were refined (using new technology and advanced techniques) so as to be more efficient in saving the lives not only of infants, but mothers as well (NIH, 1998). Today, cesarean sections are performed in countries all around the world, however they are often more commonly found in wealthier countries, which have access to the resources required to perform them. Though safer and more accessible now, cesarean sections still have risks associated with them and should be reserved for emergency circumstances when medically necessary.

The WHO Recommendation

Beyond a certain point cesarean sections may not necessarily improve maternal or infant health and can even have adverse effects (seeing as it is a serious surgical procedure with both immediate risks and long-term impacts). The World Health Organization states, “two new HRP (Human Reproduction Programme) studies show that when caesarean section rates rise towards 10% across a population, the number of maternal and newborn deaths decreases,” but, “when the rate goes above 10%, there is no evidence that mortality rates improve” (Betran et al., 2016). Due to the fact that cesarean section rates past 10% do not continue to improve maternal and infant health (and may even pose additional risks) the world health organization recommends an optimal cesarean section rate of 10-15%. We need to keep in mind that many underdeveloped and impoverished countries are dangerously below this rate because

of their restricted access to necessary resources and medical care, contributing to their high maternal and infant mortality and morbidity rates. However, we also need to acknowledge the existence of countries that have more than enough access to cesarean sections and are almost triple this recommendation- including the US at 30.3% (Betran et al., 2016). Independent of economic costs, why would it be an “excessive rate of cesarean sections” be a problem?

Health Impacts and Risks

Evidence shows that for mothers, cesarean sections can lead to: increased morbidity and mortality, infection and pain, poor birth experience- which contributes to poor psychological health (such as postpartum depression), delayed infant contact and bonding (since infants are often separated from mothers immediately following cesarean sections), longer hospital stay and recovery, and future complications in subsequent births (Collard et al., 2008). We have known about the potential risks to mothers for a long time, but many people assumed cesarean sections were safe for infants. However, recent clinical research has shown that for infants, cesarean sections can result in increased mortality and morbidity as well, specifically: respiratory problems (presumably since the lungs were not compressed passing through the birth canal, pushing fluids out), accidental surgery cuts and injuries, difficulty initiating breastfeeding and bonding (Collard et al., 2008), minimal microbial contact with the birth canal- which is needed to build a strong immune system protecting against disease and allergies (Dominguez-Bello et al., 2010), and epigenetic factors due to an adverse birth stress response- which can permanently alter behavioral response and immunological gene expression (Cho and Norman, 2013). This is why the World Health Organization recommends an optimum rate- to provide enough cesarean

sections to save the lives of mothers and infants, but not so many that they begin to endanger them, essentially balancing type 1 and type 2 errors. Balancing the high and low rates ensures that cesarean sections are not performed past the point of diminishing return (in terms of mortality rates and health outcomes of mothers and infants).

Global Distribution

As a surgical procedure, cesarean sections require equipment and drugs that can be expensive and particularly hard to obtain, especially for hospitals in poor areas. It is in these countries that cesarean sections are being performed at dangerously low rates, and many women and infants are suffering because of this. The countries with the lowest rates include: Chad (0.4%), Burkina Faso (0.7%), Ethiopia (1.0%), Madagascar (1.0%), and Niger (1.0%) to name a few (Gibbons et al., 2010). It should be noted that many (if not most) of these countries are located in Africa. In fact, in 2007 it was estimated that the continent of Africa as a whole had a cesarean section rate of only 3.5% with rates ranging from 0.4 to 15.4%, of which the upper range was associated with South Africa, which is more wealthy on average than the rest of Africa (Betran et al., 2007). In these areas with the most economic instability and the fewest cesarean sections, maternal and infant mortality and morbidity are serious issues.

While there are many countries that fall within the recommended range (i.e. Scandinavian countries), there is a growing prevalence of countries in which cesarean sections are being performed at rapidly increasing rates that some might argue are past the point of excess. These countries include: Brazil (45.9%), Dominican Republic (41.9%), Iran (41.9%), Italy (38.2%), Mexico (37.8%), and Republic of Korea (37.7%) at the upper end of the global distribution (Gibbons et al., 2010). Though

these countries have some of the highest cesarean section rates, the countries with the highest “unnecessary” cesarean sections (as determined by the World Health Organization) includes: China with a 25.9% total rate of which 31.8% were unnecessary, Brazil with a 45.6% total rate and 15.4% unnecessary, United States with a 30.3% total rate and 10.8% unnecessary, and Mexico with a 37.8% total rate and 7.5% unnecessary (Gibbons et al., 2010). Unlike the countries that do not have sufficient resources to afford *enough* cesarean sections, these countries with the highest cesarean section rates spend upwards of an additional \$600 million per year on surgical delivery (Gibbons et al., 2010). We already know why some countries do not have enough cesarean sections, but in light of these economic costs and serious risks, why would some countries have excess? There could be a number of reasons, however my hypothesis is that fear of birth and maternal preference contributes to this rate.

Chapter 2

STATEMENT OF THE PROBLEM

Medical Reasons for an Increase in Cesarean Sections

It is very possible that because of issues such as sicker patients and increasing health complications, these countries may actually *require* higher cesarean section rates. Medical issues such as maternal obesity/diabetes and pre-eclampsia could be contributing to the need for more cesarean sections, and are consequences of poor population health due to unhealthy diet and inactivity (issues that are on the rise in many developed countries). Some scholars even believe that cesarean sections themselves contribute to the increase in cephalopelvic disproportion (CPD), creating a need for even more cesarean sections over time (Mitteroecker et al., 2016). However, studies have found that these issues have not increased as rapidly as the performance of cesarean sections themselves and may not be the only factor driving this rate higher. When studying the indications for rising cesarean sections, Barber et al. found that “subjective” indications (for example “nonreassuring” fetal status- a call made by doctor’s best judgment) had more of an impact than “objective” indications, such as malposition (Barber et al., 2011). In fact, due to the lack of medical indications, some scholars have concluded that it must be “changes in physician behavior, institutional factors, and increasing patient demand for elective cesarean delivery” that are contributing to the increasing cesarean section rate (Bailit et al., 2004).

Non-Medical Reasons for the Increase in Cesarean Sections

In further exploring some of these more “subjective” indications for cesarean sections, we find that social and cultural factors could have more of an impact than medical diagnostics could. Some scholars hypothesize that rising cesarean section rates could be “inevitable” and a symptom of industrialization and technological innovation (Declerq et al., 2011). However, it is important to acknowledge that not all industrialized countries have excessive cesarean section rates and that there are plenty of wealthy countries (i.e. Scandinavian countries, as mentioned previously) that remain within the 10-15% range and actively choose not to overperform cesarean sections, both for economic benefits and the wellbeing of their women and children. However, factors such as birth environment and social surroundings can certainly contribute to cesarean sections. Some countries’ birth models may make it more difficult for patients to successfully progress in labor or deliver vaginally because of their medical practices and expectations; examples of this are: the primary location of births (home, birth center, hospital), who typically attends the births (midwives, doctors), what drugs may be used (if drugs are used at all), and how birth is thought of and discussed in this particular environment (Davis-Floyd, 2009). How medicalized a culture is and how they view birth (whether they pathologize it, feel the need to “control” it) can greatly impact how both practitioners and patients approach it.

Pre-Planned and Elective Cesarean Sections

As mentioned earlier, these surgical procedures may actually be planned ahead of time due to patient or practitioner preference. It is believed that doctors may have a preference for performing cesarean sections over vaginal deliveries. One reason doctors may prefer cesarean section is that fear of litigation is a growing concern in

the medical field and they may be used as protection against malpractice suits (Weaver et al., 2007). Another reason could be financial motivation. A US study comparing cesarean section incidence and source of payment found that women with private insurance had the highest cesarean section rates (Stafford, 1990). Similarly, in Brazil there was a distinct difference between the rates of cesarean sections performed in public hospitals and private hospitals, where patients could actually afford these procedures, regardless of whether the cesarean sections were “medically necessary” or preferred by patients (Potter, 2001). In these studies we see that doctors may have financial incentives to find reasons to perform cesarean sections or find ways to convince their patients to agree to them.

Although patient-coercion is certainly a serious issue and could be contributing to the rising cesarean section rate, we also see women who are pre-planning and electing cesarean sections even if no one is recommending it to them. It is believed that these elective cesarean sections are on the rise and could be having a large impact on the overall cesarean section rate (NIH, 2006). A review of the literature shows that “Women’s preference for a cesarean section related to psychological factors, perceptions of safety, or in some countries, was influenced by cultural or social factors” (McCourt et al, 2007). For many women, electing a cesarean section is seen to be proactive, or a way to prevent the occurrence of emergency cesarean sections which can be very dangerous and have high maternal and infant mortality rates (Armson, 2007). Behind maternally-elected cesarean sections is often a concern of risk and a fear of adverse outcomes, further enforcing the idea that psychological factors drive maternally requested cesarean sections over pure convenience or perceived ease

(Weaver et al., 2007). In all of these studies, what we see as a central issue is the presence of maternal anxiety and fear.

Chapter 3

HYPOTHESIS/OBJECTIVES

The Hypothesis

An increasingly common reason that women elect cesarean sections is anxiety and fear concerning childbirth, which is what I have chosen to focus on for the purpose of this study. In our culture, birth is often depicted negatively and many women become very fearful of a process that they do not understand that well and sometimes see as something to avoid at all costs. My hypothesis is that women who actively elect cesarean sections in the absence of medical necessity do so, at least in part, because of fear or anxiety towards birth. Likewise, I hypothesize that the women who elect cesarean sections (or are more likely to agree to them upon recommendation) are the ones who are most afraid of birth. This hypothesis is informed by an understanding of our evolutionary past and current contemporary issues concerning birth. In order to test this hypothesis I conducted a thorough literature review, in-person interviews, and created an online survey assessing women's attitudes towards birth and preferred modes of birth. This allowed me to verify if there is a correlation between negative attitudes towards birth and preferences for cesarean section and to test my hypothesis.

Additional Objectives

In addition to testing my hypothesis, I sought to expand my knowledge of women's attitudes towards birth and birth preferences. For the most part, the literature

on birth is heavily focused on the health care systems in which women are giving birth, the doctors and nurses who are attending these births, and the health and well-being of their children; however, it is rarely focused on the women themselves and how they feel leading up to, during, or following labor. I wanted to ask women about their experiences and how these experiences impacted their view of birth. Regardless of whether my hypothesis is confirmed or not, this study gathers crucial information that could be used to educate women and address their many concerns and anxieties surrounding childbirth, thus potentially improving their birth experiences and outcomes in the future.

Chapter 4

METHODS AND MATERIALS

How to Test My Hypothesis

In order to test my hypothesis that fear influences many US women to elect cesarean sections, I created a survey that assessed women's birth mode preferences (cesarean section or vaginal delivery) and would evaluate their level of fear (low, medium, high) in addition to whether the extent of their fear had any influence on their birth preference or not. My ultimate goal was to test this hypothesis and in order to do so it was essential to investigate whether there is a correlation between attitude towards birth and preferred mode of birth.

I created an online survey using Qualtrics and composed interview questions that elaborated on the questions asked through Qualtrics. While the online survey was a way to gather quick responses and quantitative data, the interview process was an opportunity for survey respondents to expand on some of their answers and express their thoughts and feelings concerning birth. I believed that it was important to include both a survey and interview component to ensure that my study was comprehensive. Often, studies of women's reproductive health provide a general overview of the results in the forms of statistics, but they do not include personal accounts and experiences of the women being studied. In this way, the women are reduced to a number and analyzed as a collective, rather than having the chance to express their individual experiences. To provide women with a voice I believed that it was important to incorporate face-to-face interviews with open-ended questions. This

approach is crucial to contextualize the results and better understand what influences them.

The Target Demographic

For the purpose of this study, I chose to focus on U.S. women between the ages of 18-30 who are anticipating getting pregnant/having children in the next 5 or so years. I included women who were already pregnant, as long as these women had never given birth before. Additionally, I specified that the participants should not have a serious pre-existing medical condition that might impact their birth experience or determine their mode of birth for them before they have the opportunity to choose for themselves. I wanted to gain a better understanding of women's attitudes towards birth *before* they experienced it and in as "typical" a situation as possible (hence, leaving out people who might be most likely to encounter difficulties).

Why this Demographic

I chose women who had never given birth before because I wanted to remove, or at least minimize, the influence of doctors and other prominent healthcare professionals on women's birth decisions. Many scholars debate whether maternal elected cesarean sections are actually preferred by mothers and hypothesize that many women are being persuaded to deliver via cesarean section by medical professionals (Gamble et al., 2007). By choosing women who had never given birth before, I reduced the chances that these women would have already discussed birth with a doctor or medical professional and would have been influenced by an outside party (mainly from the field of medicine). This way, I could maximize the chances that these pre-planned cesarean sections would be the woman's choice. Once the influence

of medical professionals was minimized, the next step was to figure out who or what *was* influencing women to plan cesarean sections for their future birth--if doctors were not.

Recruiting for the Study

To recruit for this study I posted fliers around campus at the University of Delaware, in addition to visiting classes to talk to students about participating in the survey and interview process. I forwarded the link to my online survey to various universities throughout the country (I tried to include at least one from every state). I also posted the link to my online survey, the email address for my study, and information about my study (both for the survey and interview process) on social media. This was a “snowball sample” in that the people I emailed could forward along the link to other recipients and my friends on social media could share my post with their friends or post my link on other pages. Recruiting for the interviews was also completed through “snowball sampling” as I interviewed women who I know and had them connect me with other women who were eligible and interested in participating.

Shortcomings

Despite my attempts to broaden the scope of my study through sharing it with universities throughout the country, the fact that I attend an east-coast school, means that the majority of participants probably came from this area. Because I was hanging up posters and presenting in classes at the University of Delaware only, my recruiting was disproportionately focused on Delaware students. Additionally, with the snowball sampling, many of the participants that my peers connected me with were also from around this area.

Because of this, my study is based primarily on the responses of college-aged women in the Northeast who come from a socioeconomic status that allows them to attend a large university. This focus is limiting in terms of race, ethnicity, age, educational background, and socio-economic status for my respondents (all of which could potentially influence my survey results). In an attempt to address this issue I made sure to share my study with multicultural groups on campus and historically black colleges/universities known for their diversity. However, I do not believe that this did enough to guarantee a diverse sample. In the future I plan to expand this study and turn it into a global analysis of women's birth preferences and attitudes towards birth, but before I do that I would first like to make sure that I cover all areas of the US to ensure that my results are generalized to the entire country and reflect the diverse experiences and opinions of women in the US. As a researcher and an anthropologist I aspire to provide inclusivity and accurate representation in my work.

Collecting and Analyzing the Results

Overall I conducted 6 interviews and received 368 survey responses with a 92% completion rate. To analyze my survey results I used the chi-squared test and simple statistical analysis. I divided the responses into two categories: women who prefer cesarean section and women who prefer vaginal delivery. Using this approach, I could test whether the responses of women who reported a preference for cesarean section differed at all from those who reported a preference for vaginal delivery. Differences in attitudes towards birth, exposure to birth experiences, and education surrounding birth could all impact future birth planning and preferences. By asking both groups about how fearful they were of birth, I could test whether women who

reported a preference for cesarean section were more afraid than those who report a preference for vaginal delivery.

Chapter 5

RESULTS

Introduction

I will first discuss the demographic composition of the sample in terms of participants' education level, "race"/ethnicity, and socioeconomic status. Additionally I will provide a brief overview of the birth preferences and fear levels of the group as a whole. From there I will go over the primary results, which were divided into two groups: the results of the group that report a preference for vaginal delivery and the results of the group that report a preference for cesarean section. This is so that I can compare the results of the two groups and determine if birth preference has an influence on the responses. After this I will discuss the responses to the "check-all-that-apply" questions and explore confounding factors that could influence the results of the study.

Demographic Results

Table 1: Education

Education level	<High school	High school or GED	Associates/ Bachelors	Masters	PhD/ Professional
Respondents	0 (0%)	137 (40.3%)	150 (44.1%)	39 (11.5%)	14 (4.1%)

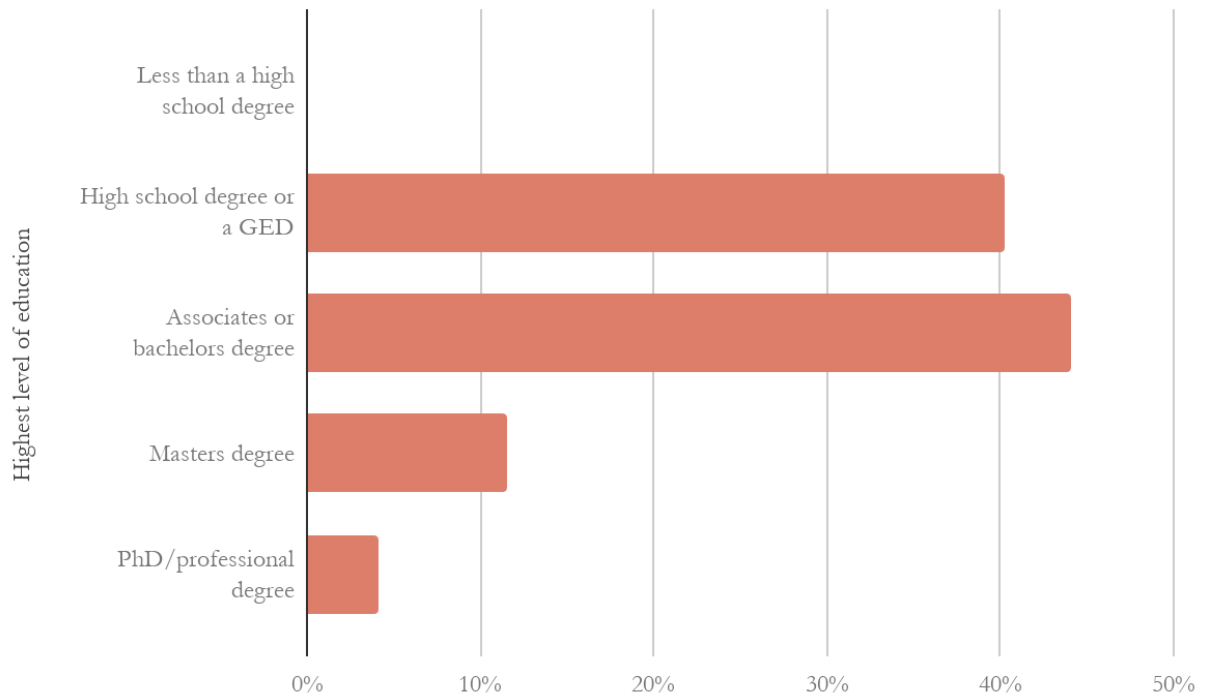


Figure 1: Education

All of the respondents had a high school education or higher. The sample was primarily young, college aged women (refer to table 1, figure 1).

Table 2: Race and Ethnicity

Race	White	Asian	Black	Other	American Indian/ Alaska Native	Native Hawaiian/ Pacific Islander
Respondents	277 (80.8%)	27 (7.9%)	21 (6.1%)	12 (3.5%)	4 (1.2%)	2 (0.6%)

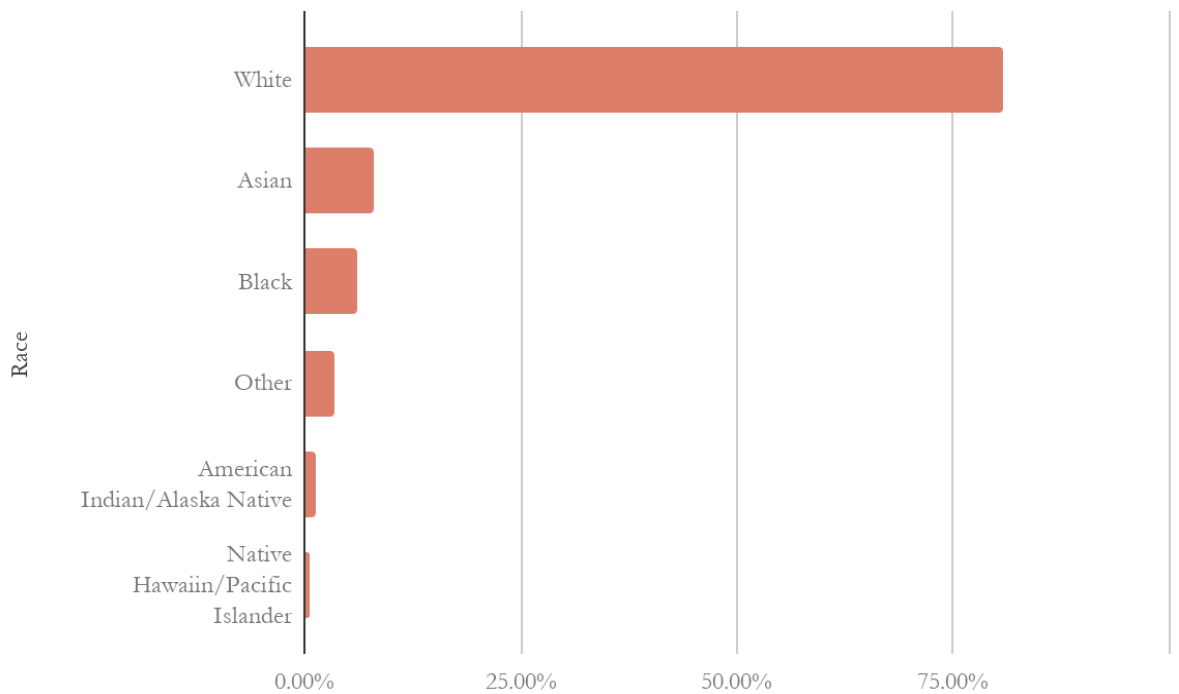


Figure 2: Race and Ethnicity

Most respondents reported that they classified themselves as White in terms of “race” and ancestry. The second most common category was Asian and the third was Black. Very few respondents identified as American Indian/Alaska Native or Native Hawaiian/Pacific islander. There was also a small group of respondents who selected “Other,” (and wrote their race/ethnicity into a text box). Most of the respondents who selected “Other” identified as “Biracial” or “Mixed race.” The sample is overwhelmingly composed of White women (table 2, figure 2).

Table 3: Socioeconomic Status

Living situation	Sometimes have problems meeting basic needs	Can usually meet basic needs	Can easily meet basic needs
Respondents	17 (5.2%)	160 (48.8%)	151 (46%)

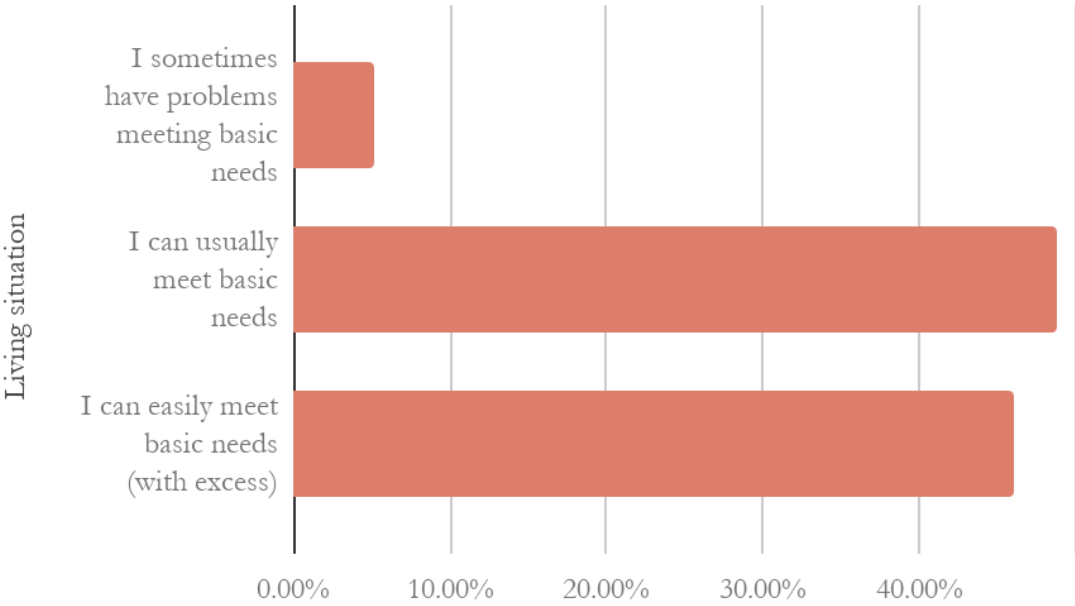


Figure 3: Socioeconomic Status

In order to assess socioeconomic status I asked about living situation (“Which statement best describes your living situation?”). Only a small portion of my

respondents reported that they sometimes have problems meeting basic needs such as housing, food, medical care, and transportation. Of the rest of the respondents, there was almost an even divide between those reporting that they could usually meet the basic needs (but seldom have money “left over” for savings and extras) and those reporting that they could easily meet all basic needs (and can save or invest in other activities). The sample in my study is primarily made up of women who are at least middle class (table 3, figure 3).

Table 4: Birth Mode

Preferred mode of delivery	Vaginal delivery	Cesarean Section
Respondents	305 (86.9%)	46 (13.1%)

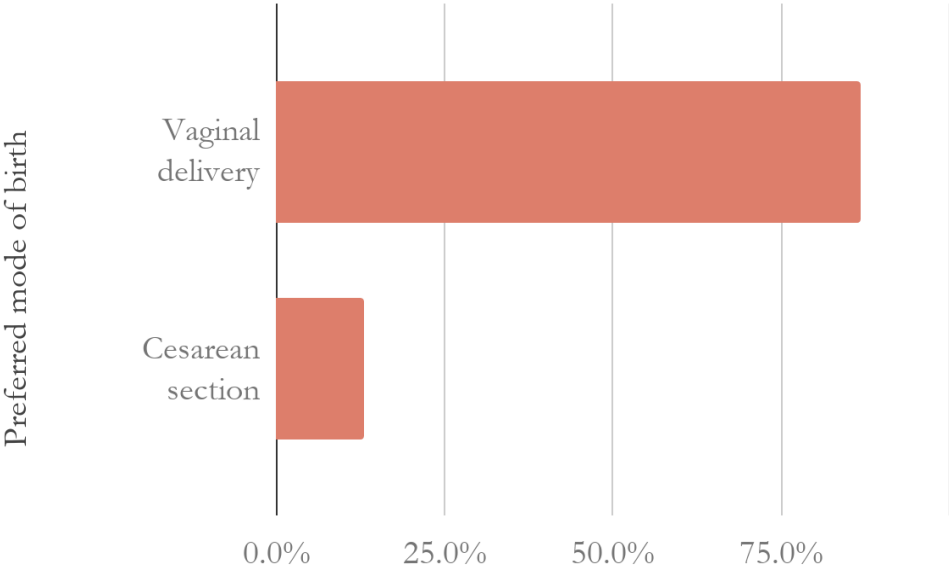


Figure 4: Birth Mode

While a majority of my respondents reported that they preferred vaginal delivery, a significant number of respondents reported preferring cesarean section in the absence of medical necessity (table 4, figure 4).

Table 5: Overall Fear

Fear level	Low/no fear	Moderate fear	Extreme fear
Respondents	105 (31.2%)	153 (45.4%)	79 (23.4%)

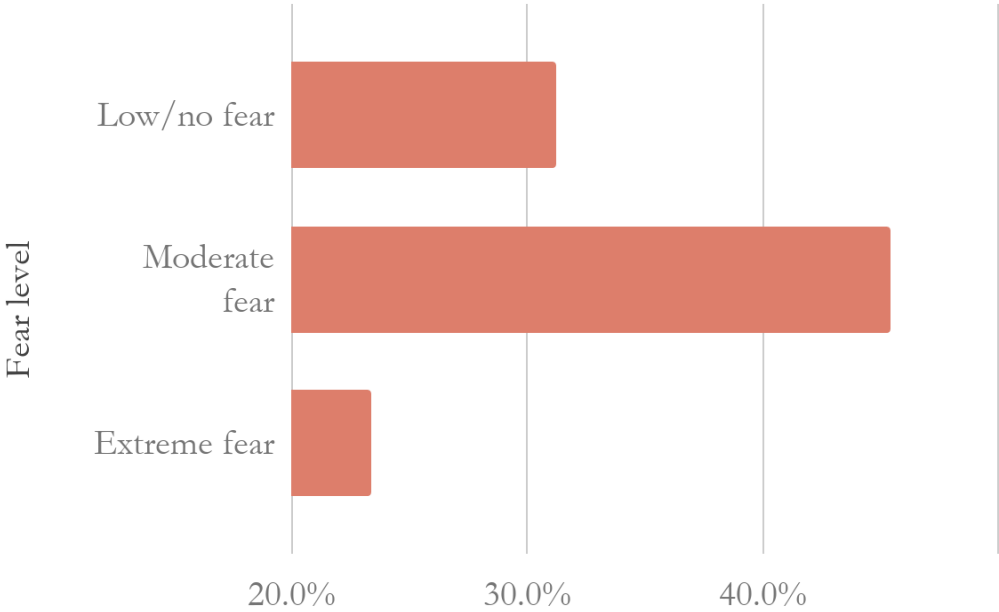


Figure 5: Overall Fear

Because I am interested in understanding how fear impacts birth decision making, one of my first questions was about fear of birth. A majority of my

respondents reported moderate fear of birth. The next most common response was low/no fear of birth and the least common response was extreme fear of birth (table 5, figure 5).

Primary Results

Table 6: Comparative Fear

Fear of birth	Low/no fear	Moderate fear	Extreme fear
Vaginal delivery group	100 (33.8%)	135 (45.6%)	61 (20.6%)
Cesarean section group	5 (12.2%)	18 (43.9%)	18 (43.9%)

*The chi-square statistic is 13.7458. The p -value is .001035. The result is significant at $p < .05$. The observed number of women who preferred cesarean section with extreme fear was greater than expected.

Fear and preferred mode of birth

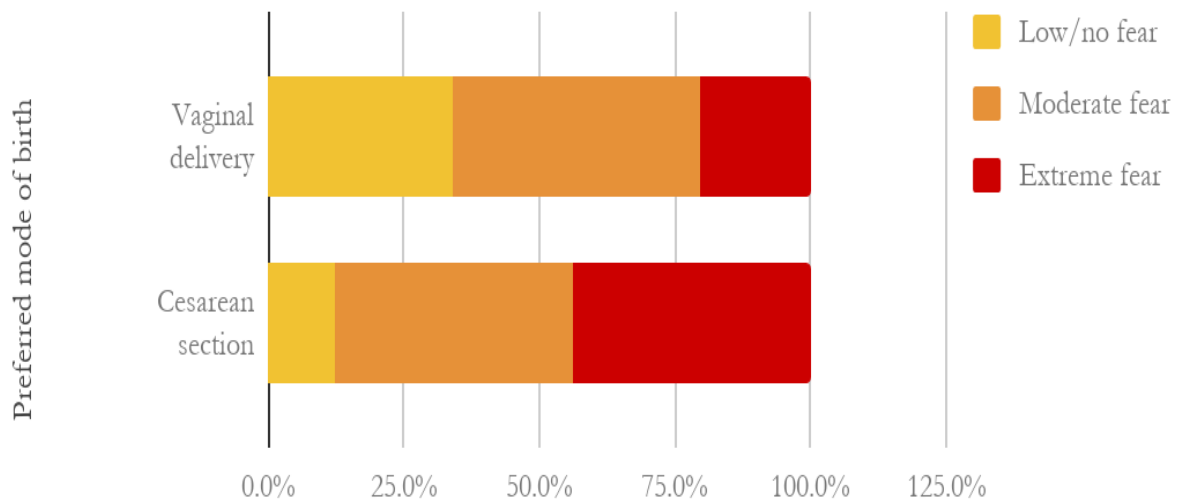


Figure 6: Comparative Fear

My hypothesis is that fear prompts women to elect or agree to cesarean sections in the absence of medical necessity. Because of this I compared the fear levels of women who reported a preference for cesarean section and women who reported a preference for vaginal delivery to see if there was a significant difference in magnitude of fear. Women reporting a preference for vaginal delivery were almost three times more likely to report low/no fear towards birth, in comparison to those who reported a preference for cesarean section. However, the women who reported a preference for vaginal delivery and the women who reported a preference for cesarean section had almost the same percent of moderate fear of birth. Lastly, the women who reported a preference for vaginal delivery were half as likely to report extreme fear of birth as the women who reported a preference for cesarean section (table 6, figure 6). These results support my hypothesis and were found to be statistically significant using the chi square test. These results indicate that women who preferred cesarean sections overwhelmingly reported the highest levels of fear. In comparing the results of the cesarean section preference group to the overall rates of the sample, I found that moderate fear is almost the same, low/no fear is much lower (one third the %), and extreme fear is much higher (double the %). For women of the vaginal delivery preference group the fear levels were almost the same as the general fear levels (refer back to table 5, figure 5).

Table 7: Influence of Fear on Choice of Mode of Birth

Influence of fear on birth preferences	Fear influences to prefer mode	Fear causes to question mode	Fear has no influence on preferences	No fear to influence preferences
Vaginal delivery group	56 (18.9%)	70 (23.7%)	159 (53.7%)	11 (3.7%)
Cesarean section group	30 (73.2%)	5 (12.2%)	4 (9.8%)	2 (4.9%)

*The chi-square statistic is 58.1711. The p -value is < 0.00001 . The result is significant at $p < .05$. The observed number of women who preferred cesarean section with a fear-influenced decision was greater than expected.

Does fear influence your birth preference?

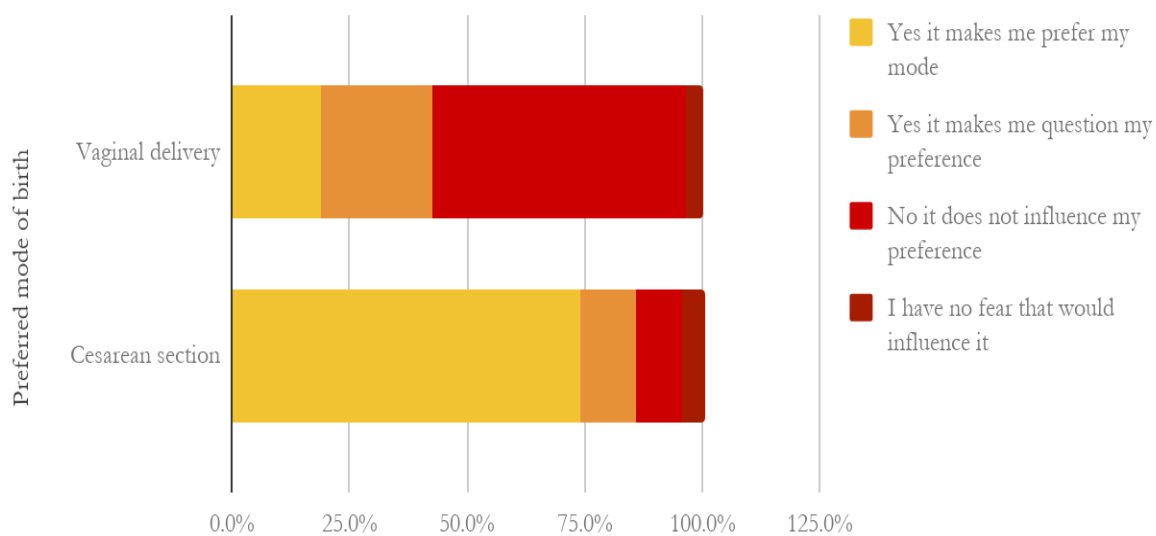


Figure 7: Influence of Fear on Choice of Mode of Birth

After assessing fear, to understand how this fear impacted decision making I asked women if their fear influenced their birth preferences (“Does your fear (or lack thereof) influence your preference for mode of birth?”). The women who preferred cesarean section were over four times more likely to report that their fear of birth influences their preference for their preferred mode of birth. The women who preferred cesarean section were almost half as likely to report that their fear made them question their preferred mode of birth. The women who preferred cesarean sections were five times less likely to report that their fear had no influence over their preferred mode of birth. The percent of women from the cesarean section group who reported that they had no fear that would influence their birth preference was almost equal to the women who preferred vaginal delivery (table 7, figure 7). These results were found to be statistically significant using the chi square test and indicate that women who prefer cesarean section not only report more extreme fear, they are more likely to report that fear influences their birth preferences (again, supporting my hypothesis that fear contributes to elective cesarean sections).

Table 8: Insistence for Preferred Mode of Birth

Insistence for preferred mode of birth	Extremely insistent	Open to alternatives
Vaginal delivery group	62 (20.6%)	239 (79.4%)
Cesarean section group	10 (23.8%)	32 (76.2%)

Insistence of mode of birth

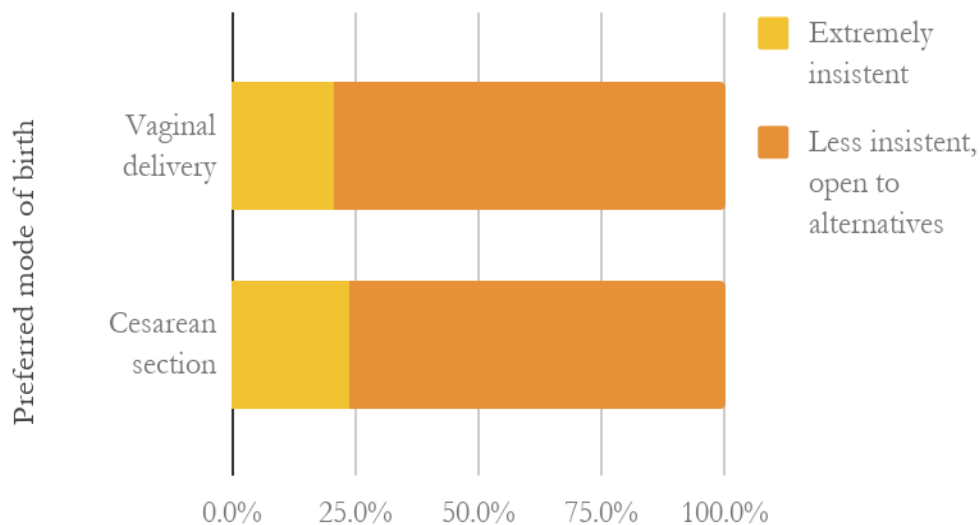


Figure 8: Insistence for Preferred Mode of Birth

The results for the two groups were nearly identical, showing similar levels of determination to deliver in a particular manner. Both groups were fairly open to alternative options of birth, with less than a quarter reporting that they were set in their ways and would deliver through no other birth method (table 8, figure 8).

Table 9: Preferred Birth Location

Preferred birth location	Home	Birth center	Hospital
Vaginal delivery group	24 (8.2%)	70 (23.9%)	199 (67.9%)
Cesarean section group	0 (0%)	1 (2.6%)	38 (97.4%)

Preferred location of birth

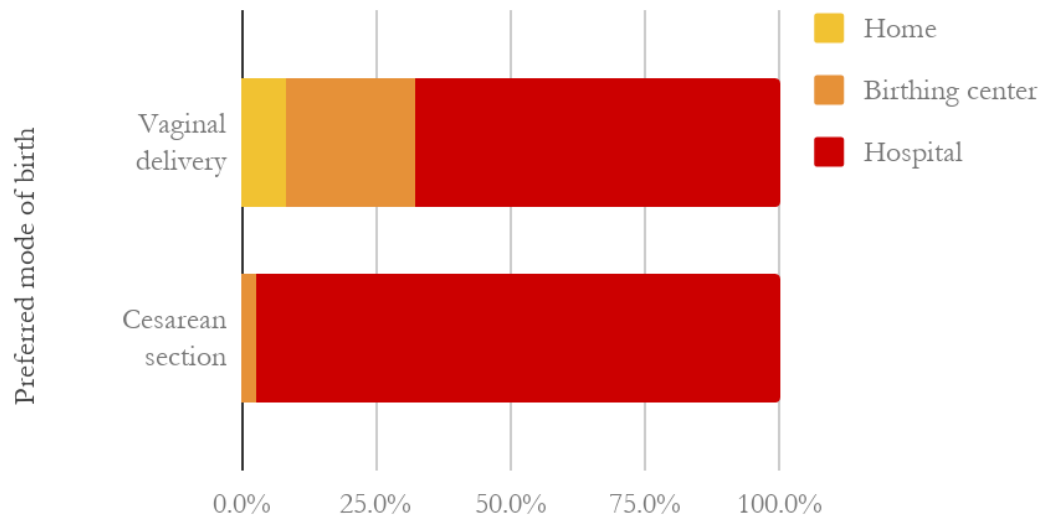


Figure 9: Preferred Birth Location

Overwhelmingly, the women who preferred cesarean section planned to deliver in the hospital and almost none reported wanting to deliver at home. The women who preferred vaginal delivery were eight times more likely than the women who favored cesarean section to want to deliver in the home; they were also ten times more likely than the women who preferred cesarean sections to want to deliver in a birthing center. 30% more women who preferred cesarean section wanted to deliver in the hospital (table 9, figure 9).

Table 10: Source of Information

Primary source on birth	Family/ friends (have given birth)	Family/ friends (have not given birth)	Books/ articles	Documentary (film)	Movie/ TV	Doctor
Vaginal delivery group	158 (54.5%)	4 (1.4%)	59 (20.3%)	26 (8.6%)	23 (7.9%)	21 (7.2%)
Cesarean section group	23 (56.1%)	1 (2.4%)	4 (9.8%)	4 (9.8%)	6 (14.6%)	3 (7.3%)

Primary source of information on birth

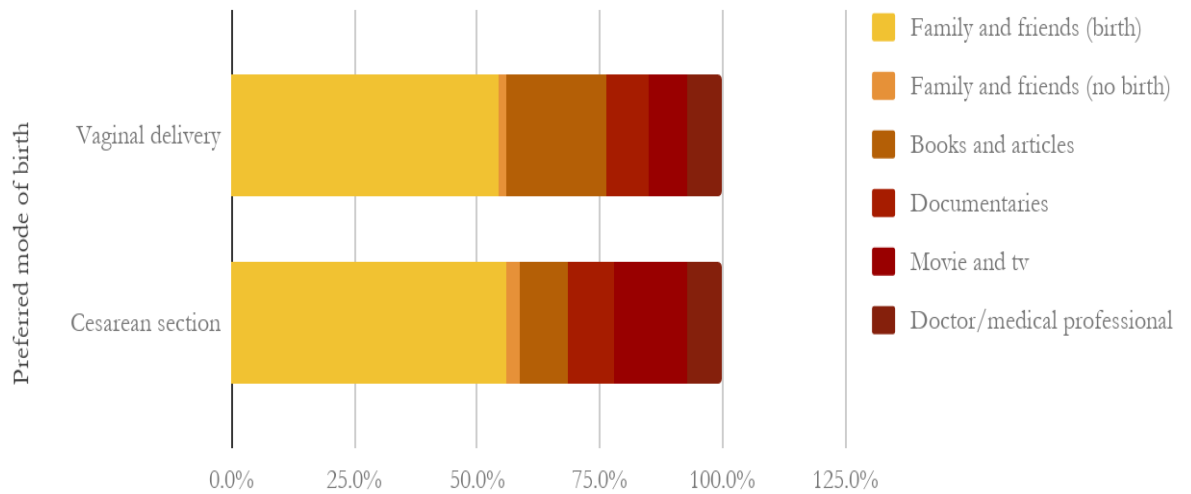


Figure 10: Source of Information

In terms of primary source of information on birth, the trends are fairly similar for both groups, with only a few noticeable differences. The women who reported a preference for vaginal delivery were twice as likely to have received their information about birth from scholarly articles and books on birth, compared to the women who reported a preference for cesarean section. Additionally, the women who reported a preference for vaginal delivery were half as likely to get their knowledge of birth from TV and movie depictions, compared to the women who reported a preference for cesarean section. Women who prefer vaginal delivery are more likely to have learned about birth through reading books and articles on birth and women who prefer cesarean sections are more likely to have learned about birth through watching movies and television shows depicting birth. Women who reported a preference for cesarean sections were twice as likely to have gotten their information on childbirth from friends and family members who had never given birth before, compared to the women who reported a preference for vaginal delivery (table 10, figure 10).

Table 11: Perception of the Safety of Preferred Mode of Birth

Perceived safety for given mode of birth	Safe for the mother	Safe for the infant	Safe for both	Safe for neither
Vaginal delivery group	25 (8.6%)	16 (5.5%)	222 (76.0%)	29 (9.9%)
Cesarean section group	6 (14.6%)	4 (9.8%)	26 (63.4%)	5 (12.2%)

Who is your preferred mode of birth safest for?

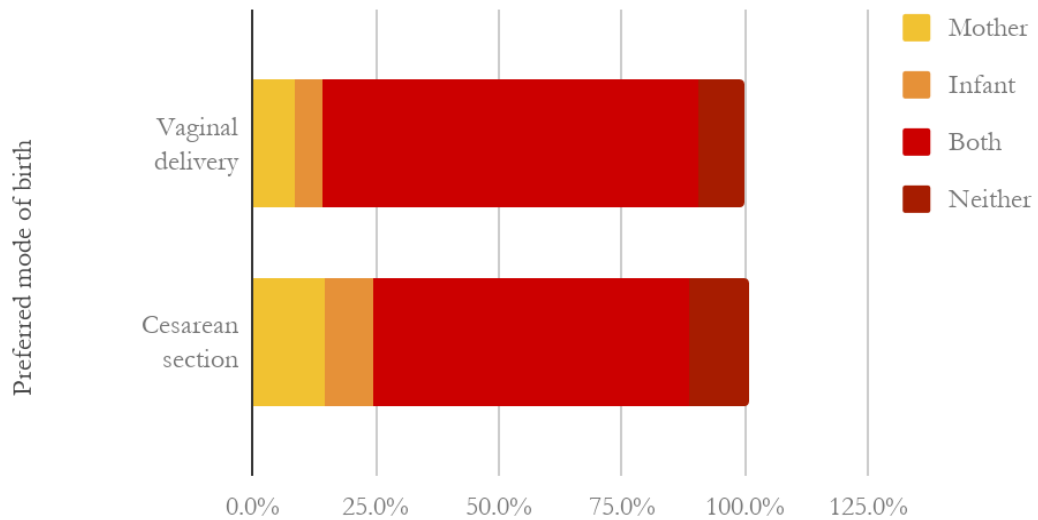


Figure 11: Perception of the Safety of Preferred Mode of Birth

For both groups, the spread of results was fairly similar; however, women who preferred cesarean section reported higher rates of perceived safety for mothers, infants, and neither, but lower rates of perceived safety for both mother and infant. Another interesting result is that many more women than expected (9.62% and 12.20%) report that they believed their preferred mode of birth is not safe for either party (table 11, figure 11); why would women choose a specific mode of birth if they did not think it was safe? This is worth exploring in future research.

Table 12: Decision-Maker

Decision-maker	Myself	My partner	My family	My friends	My doctor	Other
Vaginal delivery group	236 (81.1%)	4 (1.4%)	17 (5.8%)	0 (0%)	26 (8.9%)	8 (2.8%)
Cesarean section group	38 (92.7%)	0 (0%)	1 (2.4%)	0 (0%)	2 (4.9%)	0 (0%)

Primary decision maker

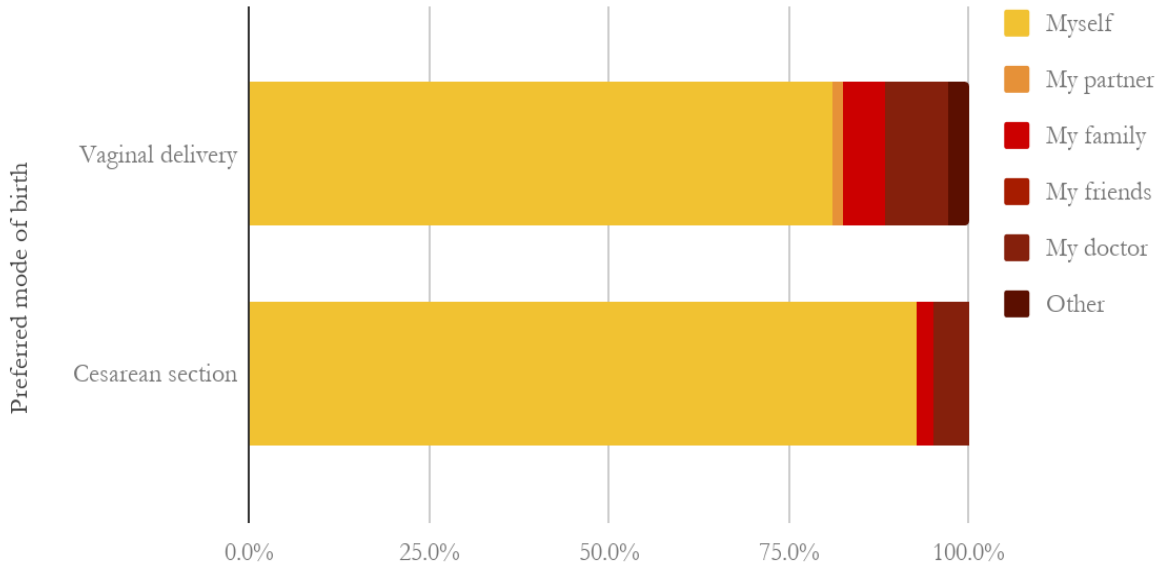


Figure 12: Decision-Maker

In both groups (those who preferred cesarean sections and those who preferred vaginal delivery) a majority of the respondents reported “myself” as the primary “decision-maker” for childbirth planning. Additionally in both groups, no one reported that their friends would make decisions about their birth for them. However, in comparison to women who preferred cesarean sections, twice as many women preferring vaginal delivery reported that their family would make the decision for them and that their doctors would make the decision for them. Women who report a preference for cesarean section, for the most part, were making these decisions for themselves (table 12, figure 12).

Multiple Response Questions

For the “check all that apply” questions, respondents could choose multiple responses, rather than having to select only one. This means, for example, that a respondent could report that she wanted both a doctor and a doula to attend her delivery.

Table 13: Company

Who you want with you	Doctor/ Nurse	Midwife/ Doula	Friends/ Family/ Partner(s)
Vaginal delivery	240 (38%)	141 (22.3%)	251 (39.7%)
Cesarean section	39 (56.5%)	6 (8.7%)	24 (34.8%)

Who would you like to attend your birth?

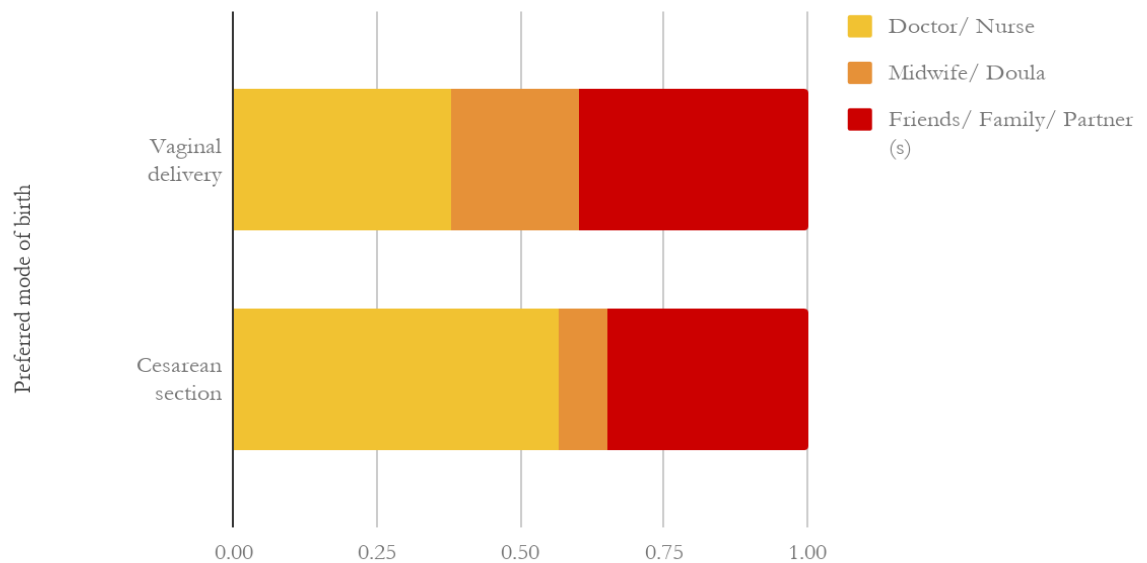


Figure 13: Company

Women who reported a preference for cesarean section were more likely to report wanting to have a doctor or nurse attend their birth than women who reported a preference for vaginal delivery. Women who reported a preference for vaginal delivery were over two times more likely to report wanting to have a midwife or doula attend their birth than women who reported a preference for cesarean section. Both groups of women reported a similar preference for having their friends, family, and partners attend their birth (table 13, figure 13).

Table 14: Witnessing Birth

Have seen a...	Live birth	Video of birth	Images of birth	I have never seen a birth
Vaginal delivery	50 (6.7%)	304 (40.8%)	340 (45.6%)	51 (6.9%)
Cesarean section	6 (5.4%)	48 (42.9%)	46 (41.1%)	12 (10.7%)

In what form have you seen a birth?

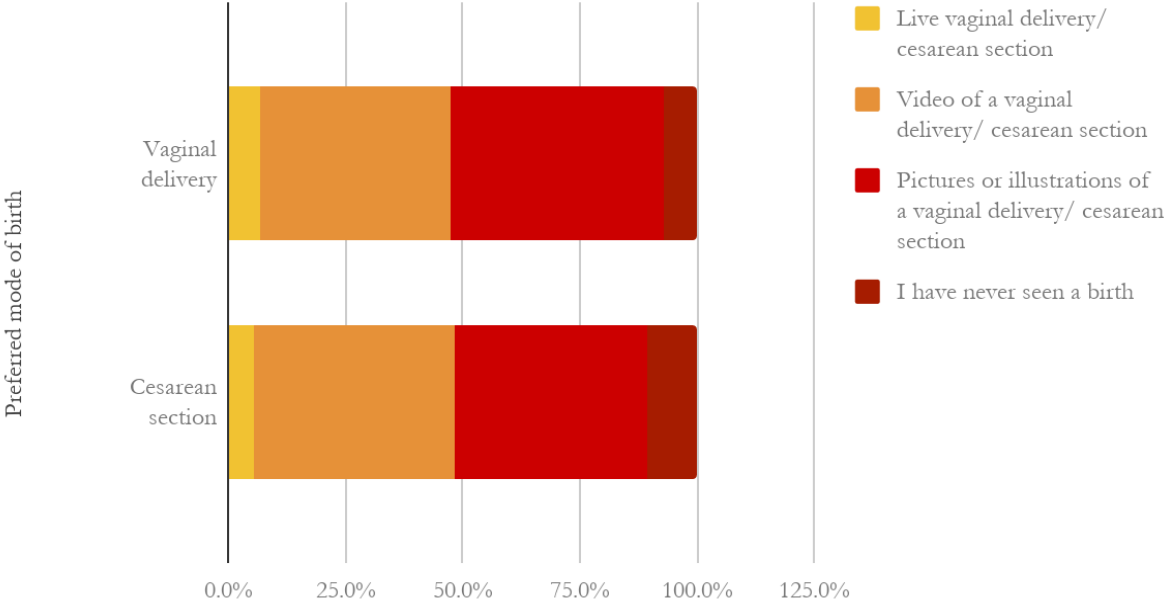


Figure 14: Witnessing Birth

Women who reported a preference for vaginal delivery and who reported a preference for cesarean section had very similar results in terms of what forms they had seen birth in. The only major difference was that women who reported a preference for cesarean section were almost twice as likely to report that they had never seen a birth before (table 14, figure 14).

Table 15: Rationale for Vaginal Delivery

Rationale	“Natural” or “normal”	Less painful or risky	Less expensive	Shorter recovery time	Other
Respondent	225 (36.4%)	115 (18.6%)	77 (12.5%)	160 (25.9%)	41 (6.6%)

What makes you prefer a vaginal delivery?

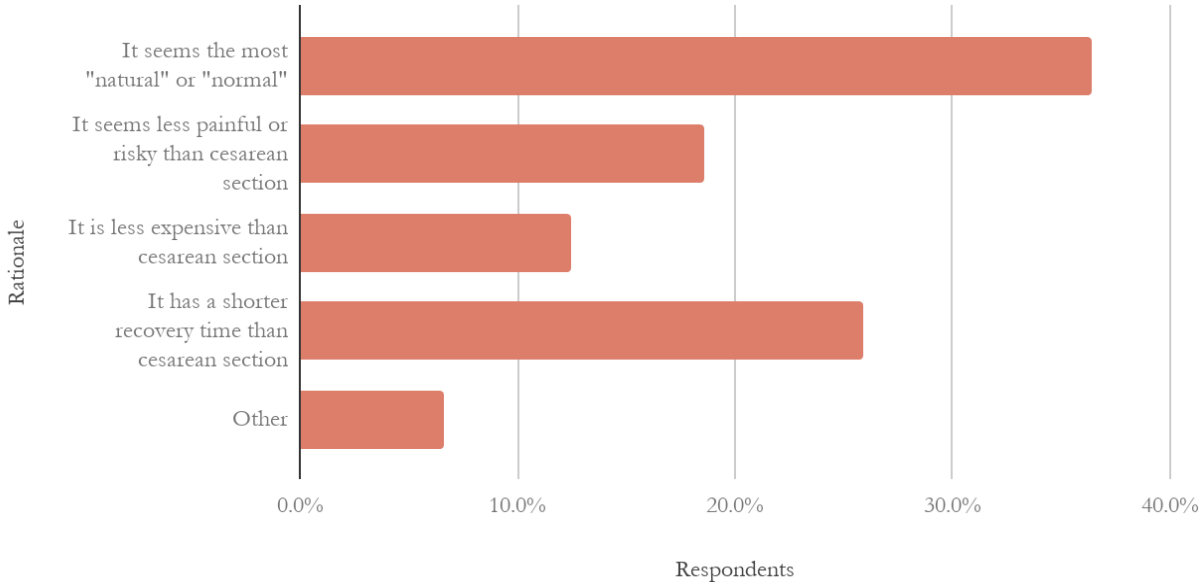


Figure 15: Rationale for Vaginal Delivery

When asked what made them prefer vaginal delivery over cesarean section, the group that reported a preference for vaginal delivery most commonly chose “It seems the most normal or natural” as their reason. The other reasons (in order of prevalence) were: “It has a shorter recovery time than cesarean section,” “It seems less painful or risky than cesarean section,” “It is less expensive than cesarean section,” and “Other.” The response “Other” mostly consisted of health-related reasons for both mothers and infants, long-term and short-term (table 15, figure 15).

Table 16: Rationale for Cesarean Section

Rationale	“Advanced” or “efficient”	Less painful or risky	Can be scheduled	“Keeps the body intact”	Other
Respondents	15 (17.4%)	36 (41.9%)	17 (19.8%)	15 (17.4%)	3 (3.5%)

What makes you prefer a cesarean section?

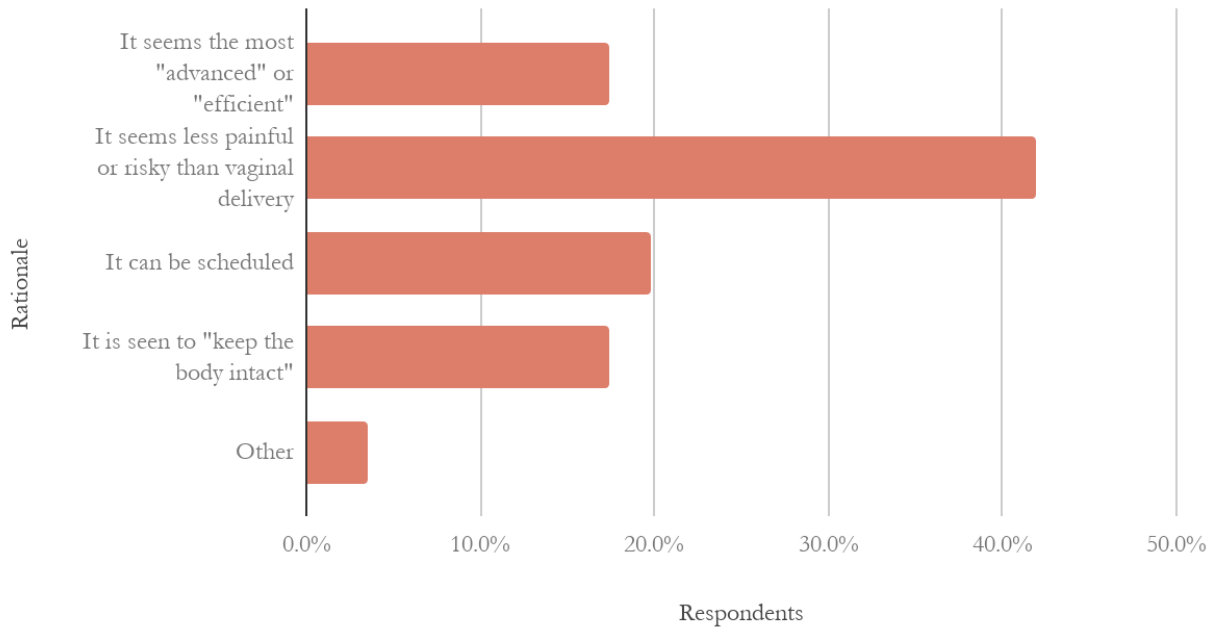


Figure 16: Rationale for Cesarean Section

When asked what made them prefer cesarean section over vaginal delivery, the group that reported a preference for cesarean section most commonly chose “It seems less painful or risky than vaginal delivery” as their reason. The other reasons (in order of prevalence) were: “It can be scheduled,” “It seems the most ‘advanced’ or ‘efficient’,” “It is seen to ‘keep the body intact’,” and “Other.” The response “Other” mostly consisted of women expressing their desire to prepare and take preventative measures, in terms of “things going wrong” (table 16, figure 16).

Testing for Confounding Factors

In order to test whether there were any confounding factors influencing my results, I took a look at how birth preference was related to race and ethnicity, socioeconomic status, and education.

Table 17: Influence of Race

Race	Black	White	Asian	American Indian/ Alaska Native	Native Hawaiian/ Pacific Islander	Other
Vaginal delivery group	19 (90.5%)	241 (87.3%)	23 (85.2%)	4 (100%)	2 (100%)	11 (100%)
Cesarean section group	2 (9.5%)	35 (12.7%)	4 (14.8%)	0 (0%)	0 (0%)	0 (0%)

Race vs Birth Preference

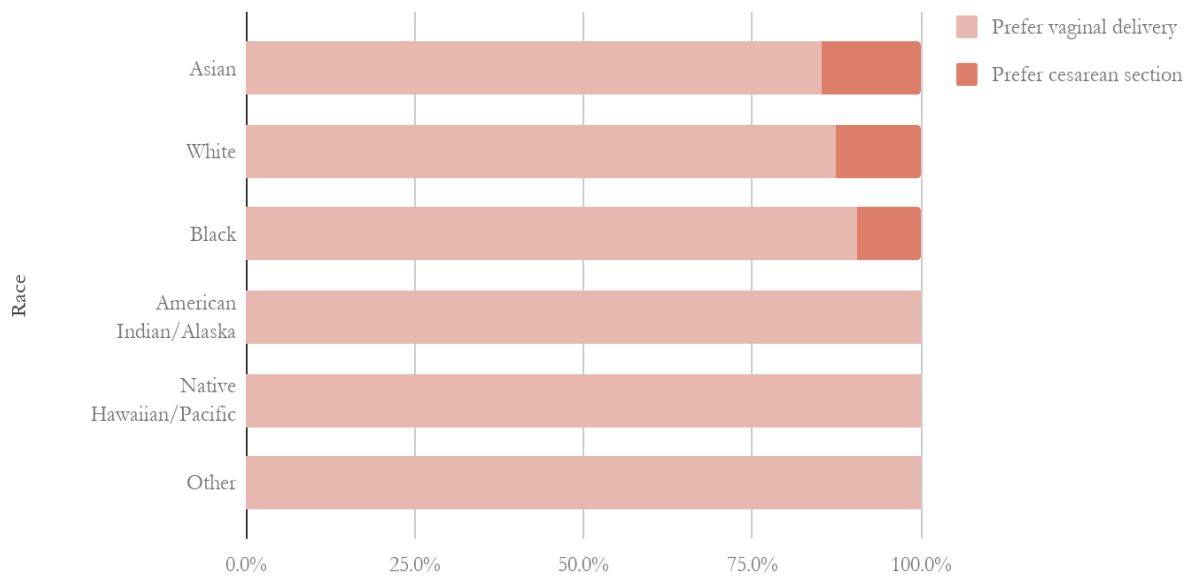


Figure 17: Influence of Race

Women who identified as American Indian/ Alaska Native, Native Hawaiian/ Pacific Islander, and “Other” all reported a preference for vaginal delivery over cesarean section, however these groups are so small that it may be impossible to draw any conclusions for them at this point. Women who identified as Black, White, and Asian had similar preferences for vaginal delivery and cesarean section (table 17, figure 17).

Table 18: Influence of Socioeconomic Status

Socioeconomic status	Low	Medium	High
Vaginal delivery group	17 (100%)	140 (88.1%)	129 (86%)
Cesarean section group	0 (0%)	19 (11.9%)	21 (14%)

SES vs Birth Preference

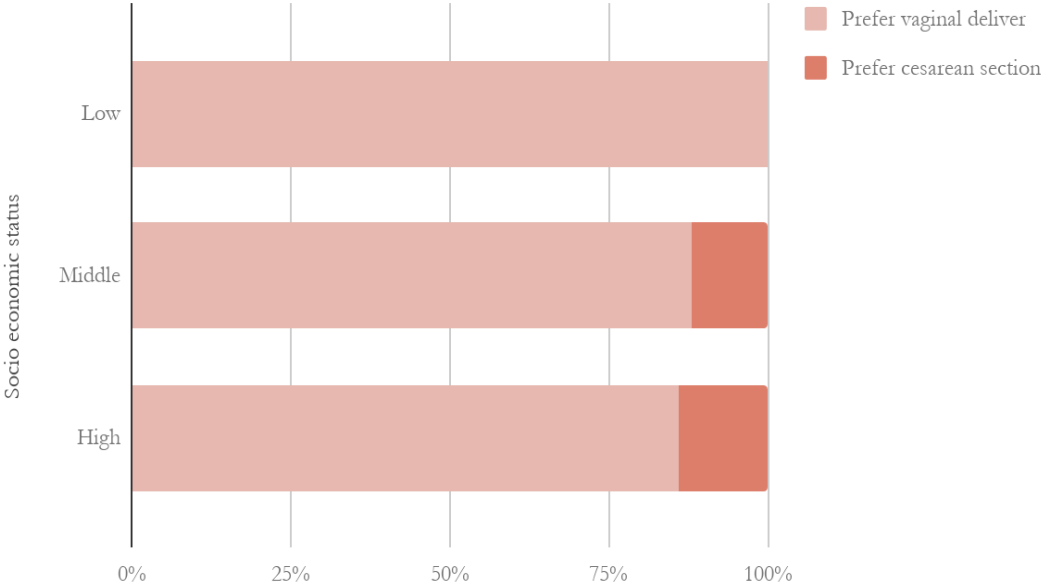


Figure 18: Influence of Socioeconomic Status

Women who reported a low socioeconomic status overwhelmingly expressed a preference for vaginal delivery. This is unsurprising, considering that cesarean sections are more expensive than vaginal deliveries. However, it should also be noted that the low socioeconomic status group is fairly small, so it may be difficult to draw any conclusions from their results. The women who reported middle to high socioeconomic status had similar preferences for cesarean section and vaginal delivery (table 18, figure 18).

Table 19: Influence of Education

Education level	<High school	High school or GED	Associates/ Bachelors	Masters	PhD/ Professional
Vaginal delivery group	0 (0%)	116 (85.3%)	132 (88.6%)	35 (89.7%)	12 (85.7%)
Cesarean section group	0 (0%)	20 (14.7%)	17 (11.4%)	4 (10.3%)	2 (14.3%)

Education vs Birth Preference

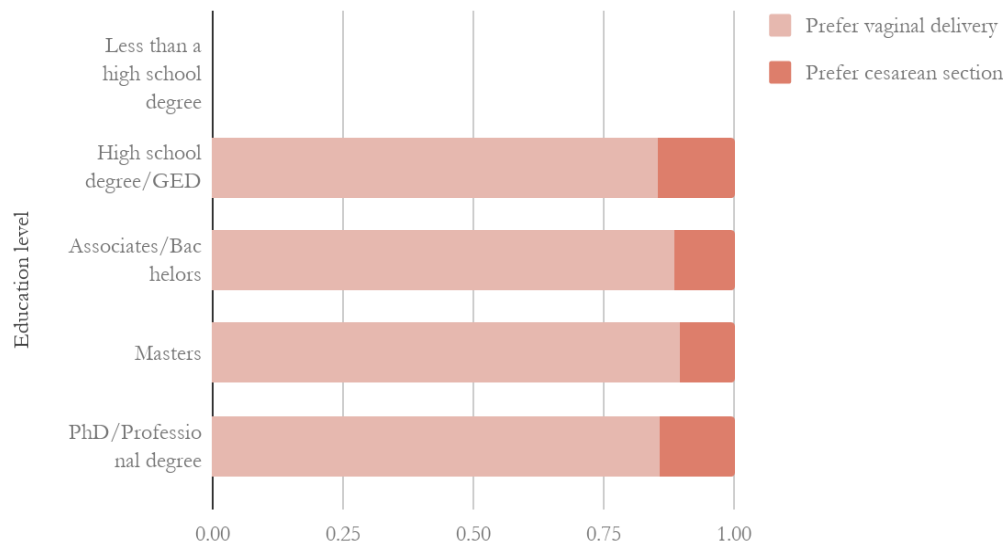


Figure 19: Influence of Education Level

None of my respondents had less than a high school degree and the women who had a high school degree or a GED, an Associates or a Bachelors, a masters, or a PhD or a professional degree all reported similar preferences for cesarean section and vaginal delivery (table 19, figure 19).

Results Summary

These results (which were found to be statistically significant using the chi square test)—that women who reported a preference for cesarean section reported both higher extreme fear levels and an increased likelihood that fear impacted their preference—confirms my hypothesis that fear of birth at least in part contributes to the growing rate of cesarean sections. The interview responses further support my hypothesis, reflecting respondents concerns of the risks of birth and their perception of

cesarean section as safest. When asked about perception of cesarean section, one respondent stated that “cesarean section just seemed easier,” and when asked about the perceived advantages of cesarean section, another respondent explained that “you don’t really feel anything, they can save your life and the baby’s when you need them...” These responses reflect a concern over the pain and risks experienced in birth and a desire to be removed from the birth experience altogether. In my study, compared to women who preferred vaginal delivery, women who preferred cesarean section were more afraid of birth, were more likely to make decisions about their mode of birth based on that fear, and felt that cesarean sections would be less painful or safer than vaginal delivery. Based on these responses and the lack of confounding factors, the best predictor for preference for cesarean section was level of fear towards birth.

Chapter 6

DISCUSSION

Supporting Evidence

These results are further substantiated by the findings of similar studies that report a strong relationship between maternal fear of birth and preference for cesarean section. In their study exploring the influence of fear on elective cesarean sections in US women, Stoll et al. found that respondents with the highest level of fear were four times more likely to prefer a cesarean delivery than women with lower levels of fear (Stoll et al., 2015). However, in contrast to my study they found that the fear stemmed from concerns over changes to the body as a result of pregnancy or childbirth, whereas with my respondents this concern had minimal influence (Stoll et al., 2015). In Canada, similar studies were conducted by Stoll et al. (Stoll et al., 2014) and Stoll and Hall (Stoll and Hall, 2013) where it was found that women who reported a preference for vaginal delivery saw birth as a “natural process” and women who reported a preference for cesarean section saw birth as something “frightening” and “risky” that needed to be managed. My respondents had these same concerns and outlooks, which also influenced them to prefer certain birth modes over others. Other countries where a correlation between patient fear and preference for elective cesarean section was found include: Finland (Rouhe et al., 2009), Germany (Stutzer et al., 2017), Israel (Handelzalts et al., 2012), and Sweden (Nieminen et al., 2009; Wiklund et al., 2007).

Additionally, there were two large-scale studies that looked at six European countries (Belgium, Iceland, Denmark, Estonia, Norway, and Sweden) to find a

connection between fear and cesarean section (Lukasse et al., 2014; Ryding et al., 2015). Much like the studies discussed previously, severe fear contributed considerably to the presence of pre-planned and maternally elected cesarean sections. However, what was interesting about the Lucasse et al. study is that although they found that, “the content of fear of childbirth may differ between countries,” they also found that fear of childbirth, “appears to be an international phenomenon, existing with similar proportions in the participating European countries...” (Lucasse et al., 2014). Essentially, though the source of and extent of this fear may vary, it is present everywhere and impacting birth outcomes noticeably. All these studies demonstrate that the issue of fear of childbirth extends well beyond the borders of the United States, and that this may very well be a global issue. In order to understand just how prevalent and far-reaching this issue is, I believe that it is crucial to continue this research (especially in regions that have yet to be explored), as the current trends indicate that this fear may be more common than previously believed.

Bigger Picture/Contextualizing Results

This prevalent fear found in both my study and the other various studies discussed is understandable considering the birth environment and approaches to women’s health in many Western countries. In these countries, the US included, there seems to be a disconnect or mismatch between the care that women need and the care that they are receiving. The fossil and ethnographic records suggest that humans give birth in a comforting, familiar environment surrounded by caring assistants who may be family and friends, midwives, or other health care professionals (Rosenberg and Trevathan, 1995). This has been the case for much of human history, making birth assistance essentially an ancient human universal. Evidence of the importance of

social support can be seen by the improvement in birth outcomes when doulas (trained emotional support) are provided, for example a 41% decrease in the likelihood of cesarean sections for Medicaid patients provided doulas over those not provided doulas (Kozhimannil et al., 2013). Doulas are found to reduce the complications, duration, and pain of labor as well as lessen the need for medical interventions, such as forceps or cesarean sections (Scott et al., 1999). Today in many cultures women often give birth isolated in unfamiliar clinical settings and may experience fear or anxiety concerning birth, which could be mitigated by emotional and social support (Rosenberg and Trevathan, 2018). One response to this would be to eliminate the (frightening) birth experience altogether by performing a surgical delivery, but another, more straightforward approach, would be dealing directly with this emotional response. Recognizing the social contexts in which birth has occurred for a long time in our pre-history allows us to think about ways to improve the birth experience today.

Chapter 7

CONCLUSION

Informed Interventions

The results of this study, and other studies like it, could be used to inform interventions and initiatives that directly reflect the concerns of the patients. Based on my results, I believe that there should be an effort made to: 1. Create a more comforting and supportive birth environment where women feel respected and heard and have their concerns fully addressed, 2. Provide counseling to soon-to-be mothers as well as giving them access to doulas (especially women who are lacking community and support in their lives), 3. Intervene early and provide more comprehensive prenatal care, 4. Increase education surrounding pregnancy and birth to make sure that women understand the risks and benefits associated with each mode of birth so that they can operate from a place of agency and informed consent and make the best possible decision for themselves and their infants, and 5. De-stigmatize birth and empower women so that they are no longer afraid of birth and have confidence in their abilities to deliver a child successfully. In order to strive for this we can look to medical systems where many of these techniques are practiced.

It is crucial to educate both patients *and* practitioners about these issues. Patients need to be knowledgeable about birth so that they may advocate for themselves and have confidence in themselves. However, practitioners need to know how their patients are feeling, why they are feeling a certain way, and what can be done to address it. Doctors should be aware of patients concerns so that they can make

a conscious effort to mitigate any discomfort or anxiety patients may be feeling. Recent studies have demonstrated the effectiveness of psychosocial interventions, education, and counseling for birth fear and anxiety (Hutton and Hall, 2014; Nerum et al., 2006; Toohill et al., 2014). Such interventions can be implemented in order to help women feel more comforted, assured, and confident in themselves, decreasing the likelihood that they would elect cesarean section and improving overall birth experience.

Leading by Example

There are some countries whose cesarean section rates are on target with the WHO recommendation- not because they have restricted access, but because they are making the conscious decision to perform only what is necessary and find ways to prevent the occurrence of “excessive” cesarean sections. Countries who have sufficient funds to access resources, yet are near the WHO recommended range and have no “unnecessary” cesarean sections (as determined by WHO) include: Iceland 15.6%, Belgium 15.9%, Finland 16.3%, Norway 16.6%, and Sweden 17.3% (Gibbons, 2010). Additionally, it should be noted that these countries have fairly low maternal and infant mortality and morbidity rates and excellent health outcomes. By studying how these countries approach maternal and infant care we can better understand how they maintain such reasonable cesarean section rates and further encourage better maternal and infant health. Women from Sweden, the Netherlands, and countries with similar levels of income have universal health care, are giving birth at home more frequently, have more births supervised by midwives and doulas, and political support for women’s reproductive rights (Davis-Floyd, 2009).

The differences between the wealthy countries with excessive rates and the wealthy countries with on-target rates lies in the amount of support that these women are receiving and the level of comfort they feel when delivering. If a woman trusts the person delivering her child and is in a stable environment then she will be less fearful which will help her to feel more confident in herself and her ability to give birth vaginally, making her less likely to ask for a surgical procedure/intervention. The rise in elective cesarean sections is not only a matter of how much money a country has, but rather how that country chooses to spend its money. While the US devotes resources to surgical procedures and interventions, countries like the Netherlands invest in social and emotional support for their patients (i.e. prenatal care, midwives, doulas). By providing emotional support and addressing women's fears as these countries do we may reduce occurrence of cesarean sections.

The Potential Impact that these Interventions Could Have

Through these interventions we can hopefully reduce the likelihood that a woman would elect or agree to a cesarean section outside of medical necessity. By reducing the excessive cesarean section rate, which greatly impacts both maternal and infant health, we could improve health outcomes throughout the country. In infants, these impacts are not only immediate (in terms of the risks they face during the procedure itself); they are also long-term and have potential developmental and intergenerational affects. By only performing medically necessary cesarean sections we can ensure better health outcomes for women and children and improve the health of generations to come.

REFERENCES

- Armson, B. Anthony. "Is planned cesarean childbirth a safe alternative?." *Canadian Medical Association Journal* 176, no. 4 (2007): 475-476.
- Bailit, Jennifer L., Thomas E. Love, and Brian Mercer. "Rising cesarean rates: are patients sicker?" *American Journal of Obstetrics & Gynecology* 191, no. 3 (2004): 800-803.
- Barber, Emma L., Lisbet Lundsberg, Kathleen Belanger, Christian M. Pettker, Edmund F. Funai, and Jessica L. Illuzzi. "Contributing indications to the rising cesarean delivery rate." *Obstetrics and Gynecology* 118, no. 1 (2011): 29.
- Betrán, Ana P., Mario Merialdi, Jeremy A. Lauer, Wang Bing, Shun, Jane Thomas, Paul Van Look, and Marsden Wagner. "Rates of caesarean section: analysis of global, regional and national estimates." *Paediatric and Perinatal Epidemiology* 21, no. 2 (2007): 98-113.
- Betrán, Ana P., Maria R. Torloni, Jia-Jia Zhang, Ahmet M. Gülmezoglu, WHO Working Group on Caesarean Section, Hany A. Aleem, Fernando Althabe et al. "WHO Statement on caesarean section rates." *BJOG: An International Journal of Obstetrics & Gynaecology* 123, no. 5 (2016): 667-670.
- Cho, Clara E., and Mikael Norman. "Cesarean section and development of the immune system in the offspring." *American Journal of Obstetrics & Gynecology* 208, no. 4 (2013): 249-254.
- Collard, Tara D., Habi Diallo, Alona Habinsky, Colleen Hentschell, and Toni M. Vezeau. "Elective cesarean section." *Nursing for Women's Health* 12, no. 6 (2008): 480-488.
- Davis-Floyd, Robbie, ed. *Birth models that work*. Univ of California Press, 2009.
- Declercq, Eugene, Robin Young, Howard Cabral, and Jeffrey Ecker. "Is a rising cesarean delivery rate inevitable? Trends in industrialized countries, 1987 to 2007." *Birth* 38, no. 2 (2011): 99-104.

- Dominguez-Bello, Maria G., Elizabeth K. Costello, Monica Contreras, Magda Magris, Glida Hidalgo, Noah Fierer, and Rob Knight. "Delivery mode shapes the acquisition and structure of the initial microbiota across multiple body habitats in newborns." *Proceedings of the National Academy of Sciences* 107, no. 26 (2010): 11971-11975.
- Gamble, Jenny, Debra K. Creedy, Chris McCourt, Jane Weaver, and Sarah Beake. "A critique of the literature on women's request for cesarean section." *Birth* 34, no. 4 (2007): 331-340.
- Gardella, Carolyn, Melanie Taylor, Thomas Benedetti, Jane Hitti, and Cathy Critchlow. "The effect of sequential use of vacuum and forceps for assisted vaginal delivery on neonatal and maternal outcomes." *American Journal of Obstetrics and Gynecology* 185, no. 4 (2001): 896-902.
- Gibbons, Luz, José M. Belizán, Jeremy A. Lauer, Ana P. Betrán, Mario Merialdi, and Fernando Althabe. "The global numbers and costs of additionally needed and unnecessary caesarean sections performed per year: overuse as a barrier to universal coverage." *World Health Report* 30 (2010): 1-31.
- Handelzalts, Jonathan E., Shimrit Fisher, Samuel Lurie, Amir Shalev, Abraham Golan, and Oscar Sadan. "Personality, fear of childbirth and cesarean delivery on demand." *Acta Obstetrica et Gynecologica Scandinavica* 91, no. 1 (2012): 16-21.
- Hutton, Eileen K., and Wendy Hall. "Psychoeducation for pregnant women with fear of childbirth increases rates of spontaneous vaginal delivery, reduces caesarean rates and improves delivery experience." *Evidence-based nursing* 17, no. 4 (2014): 105-105.
- Jolly, Alison. "Primate birth hour." *International Zoo Yearbook* 13, no. 1 (1973): 391-397.
- Kozhimannil, Katy Backes, Rachel R. Hardeman, Laura B. Attanasio, Cori Blauer-Peterson, and Michelle O'Brien. "Doula care, birth outcomes, and costs among Medicaid beneficiaries." *American Journal of Public Health* 103, no. 4 (2013): e113-e121.
- Lukasse, Mirjam, Berit Schei, Elsa Lena Ryding, and Bidens Study Group. "Prevalence and associated factors of fear of childbirth in six European countries." *Sexual & Reproductive Healthcare* 5, no. 3 (2014): 99-106.

- McCourt, Chris, Jane Weaver, Helen Statham, Sarah Beake, Jenny Gamble, and Debra K. Creedy. "Elective cesarean section and decision making: a critical review of the literature." *Birth* 34, no. 1 (2007): 65-79.
- Mitteroecker, Philipp, Simon M. Huttegger, Barbara Fischer, and Mihaela Pavlicev. "Cliff-edge model of obstetric selection in humans." *Proceedings of the National Academy of Sciences* 113, no. 51 (2016): 14680-14685.
- National Institute of Health "Cesarean Section - A Brief History: Part 1." U.S. National Library of Medicine. April 27, 1998.
<https://www.nlm.nih.gov/exhibition/cesarean/part1.html>.
- National Institute of Health "Cesarean Section - A Brief History: Part 2." U.S. National Library of Medicine. April 27, 1998.
<https://www.nlm.nih.gov/exhibition/cesarean/part2.html>.
- National Institute of Health. "NIH State-of-the-Science Conference: Cesarean Delivery on Maternal Request." March 27-29, 2006.
http://consensus.nih.gov/2006/2006CesareanSOS_027Statementhtml.htm.
- Nerum, Hilde, Lotta Halvorsen, Tore Sørli, and Pål Øian. "Maternal request for cesarean section due to fear of birth: can it be changed through crisis oriented counseling?." *Birth* 33, no. 3 (2006): 221-228.
- Nieminen, Katri, Olof Stephansson, and Elsa Lena Ryding. "Women's fear of childbirth and preference for cesarean section—a cross sectional study at various stages of pregnancy in Sweden." *Acta obstetricia et gynecologica Scandinavica* 88, no. 7 (2009): 807-813.
- Potter, Joseph E., Elza Berquó, Ignez HO Perpétuo, Ondina Fachel Leal, Kristine Hopkins, Marta Rovey Souza, and Maria Célia de Carvalho Formiga. "Unwanted caesarean sections among public and private patients in Brazil: Prospective study." *British Medical Journal* 323, no. 7322 (2001): 1155-1158.
- Rosenberg, Karen R. "The evolution of modern human childbirth." *American Journal of Physical Anthropology* 35, no. S15 (1992): 89-124.
- Rosenberg, Karen, and Wenda Trevathan. "Bipedalism and human birth: The obstetrical dilemma revisited." *Evolutionary Anthropology: Issues, News, and Reviews* 4, no. 5 (1995): 161-168.
- Rosenberg, Karen, and Wenda Trevathan. "Birth, obstetrics and human evolution." *BJOG: An International Journal of Obstetrics & Gynaecology* 109, no. 11 (2002): 1199-1206.

- Rosenberg, Karen R., and Wenda R. Trevathan. "Evolutionary perspectives on cesarean section." *Evolution, Medicine, and Public Health* 2018, no. 1 (2018): 67-81.
- Rouhe, H., K. Salmela Aro, E. Halmesmäki, and T. Saisto. "Fear of childbirth according to parity, gestational age, and obstetric history." *BJOG: An International Journal of Obstetrics & Gynaecology* 116, no. 1 (2009): 67-73.
- Ryding, Elsa Lena, Mirjam Lukasse, An Sophie Van Parys, Anne Marie Wangen, Helle Karro, Hildur Kristjansdottir, Anne Mette Schroll, Berit Schei, and Bidens Group. "Fear of childbirth and risk of cesarean delivery: A cohort study in six European countries." *Birth* 42, no. 1 (2015): 48-55.
- Scott, Kathryn D., Phyllis H. Klaus, and Marshall H. Klaus. "The obstetrical and postpartum benefits of continuous support during childbirth." *Journal of women's health & gender-based medicine* 8, no. 10 (1999): 1257-1264.
- Stafford, Randall S. "Cesarean section use and source of payment: an analysis of California hospital discharge abstracts." *American Journal of Public Health* 80, no. 3 (1990): 313-315.
- Stoll, Kathrin, and Wendy A. Hall. "Attitudes and preferences of young women with low and high fear of childbirth." *Qualitative health research* 23, no. 11 (2013): 1495-1505.
- Stoll, Kathrin, Wendy Hall, Patricia Janssen, and Elaine Carty. "Why are young Canadians afraid of birth? A survey study of childbirth fear and birth preferences among Canadian University students." *Midwifery* 30, no. 2 (2014): 220-226.
- Stoll, Kathrin, Joyce Katherine Edmonds, and Wendy A. Hall. "Fear of childbirth and preference for cesarean delivery among young American women before childbirth: a survey study." *Birth* 42, no. 3 (2015): 270-276.
- Stützer, Paul Philipp, Sebastian Berlit, Stefanie Lis, Christian Schmahl, Marc Sütterlin, and Benjamin Tuschy. "Elective caesarean section on maternal request in Germany: factors affecting decision making concerning mode of delivery." *Archives of Gynecology and Obstetrics* 295, no. 5 (2017): 1151-1156.
- Toohill, Jocelyn, Jennifer Fenwick, Jenny Gamble, Debra K. Creedy, Anne Buist, Erika Turkstra, and Elsa Lena Ryding. "A randomized controlled trial of a psycho education intervention by midwives in reducing childbirth fear in pregnant women." *Birth* 41, no. 4 (2014): 384-394.

- Trevathan, Wenda R. *Human birth: an evolutionary perspective*. New York: De Gruyter, 1987.
- Trevathan, Wenda, and Karen Rosenberg. "The shoulders follow the head: postcranial constraints on human childbirth." *Journal of Human Evolution* 39, no. 6 (2000): 583-586.
- Trevathan, Wenda. *Ancient bodies, modern lives: how evolution has shaped women's health*. Oxford University Press, 2010.
- Washburn, Sherwood L. "Tools and human evolution." *Scientific American* 203, no. 3 (1960): 62-75.
- Weaver, Jane J., Helen Statham, and Martin Richards. "Are there "unnecessary" cesarean sections? Perceptions of women and obstetricians about cesarean sections for nonclinical indications." *Birth* 34, no. 1 (2007): 32-41.
- Weiner, Stuart, Janet Monge, and Alan Mann. "Bipedalism and parturition: an evolutionary imperative for cesarean delivery?." *Clinics in perinatology* 35, no. 3 (2008): 469-478.
- Wells, Jonathan CK, Jeremy M. DeSilva, and Jay T. Stock. "The obstetric dilemma: an ancient game of Russian roulette, or a variable dilemma sensitive to ecology?." *American Journal of Physical Anthropology* 149, no. S55 (2012): 40-71.
- Whitcome, Katherine K., Liza J. Shapiro, and Daniel E. Lieberman. "Fetal load and the evolution of lumbar lordosis in bipedal hominins." *Nature* 450, no. 7172 (2007): 1075-1078.
- Wiklund, Ingela, Gunnar Edman, and Ellika Andolf. "Cesarean section on maternal request: reasons for the request, self estimated health, expectations, experience of birth and signs of depression among first time mothers." *Acta Obstetrica et Gynecologica Scandinavica* 86, no. 4 (2007): 451-456.

Appendix A
SURVEY FORM

Attitudes Towards Birth

Survey Flow

Block: Demographics (7 Questions)

Branch: New Branch

If

If Are you a woman age 18-30 who has never had a child but is anticipating having children in the ne... No, I do not fit this description Is Selected

EndSurvey:

Branch: New Branch

If

If Do you agree to participate in the following survey and feel comfortable having your responses us... No Is Selected

EndSurvey:

Standard: Birth preference (3 Questions)

Standard: Attitudes towards birth (4 Questions)

Standard: Decision making (8 Questions)

Standard: Pre-existing knowledge (4 Questions)

Standard: Additional Questions (3 Questions)

Page Break

Start of Block: Demographics

For the purpose of this survey, we are looking for U.S. women between the ages of 18-30 who are anticipating getting pregnant/having children in the next 5 or so years. You may be pregnant, but should not have given birth before and should not have a serious pre-existing medical condition that might impact your birth experience. We are interested in your attitudes towards birth before you experience it.

Do you agree to participate in the following survey and feel comfortable having your responses used for research purposes (while preserving anonymity)? Please know that you can quit at any time or contact us at any point to request that we delete your response/omit you from the study. You can contact us through email (childbirthplanning@gmail.com) or phone (302-831-1855). You can also contact the University of Delaware IRB if you have any questions or concerns through email (hsrb-research@udel.edu) or phone (302-831-2137).

- Yes, I consent (1)
- No, I do not consent (2)
-

Are you a woman living in the U.S. who is between the ages of 18-30 who has never had a child but is anticipating having children in the near future/is currently planning first birth?

- Yes, I fit this description (1)
- No, I do not fit this description (2)
-

What is your highest level of education?

- Less than a High School degree (5)
 - High School diploma/GED (1)
 - Bachelors/Associates (2)
 - Masters (3)
 - PhD/Professional degree (4)
-

How would you best classify your "race" or ancestry?

- Black (1)
 - White (2)
 - Asian (3)
 - American Indian or Alaska Native (4)
 - Native Hawaiian or other Pacific Islander (5)
-

In terms of ethnicity, are you Hispanic/Latino?

- Yes (1)
 - No (2)
-

Which statement best describes your living situation?

- I sometimes have problems meeting basic needs (housing, food, medical care, transportation) (1)
- I can usually meet basic needs, but have little money left over for savings or extras (2)
- I am easily able to meet all basic needs and can save or invest in other activities (3)

End of Block: Demographics

Start of Block: Birth preference

In the absence of medical necessity, would you most prefer...

- Vaginal delivery (birth) (1)
- Elective cesarean section (birth by surgery) (2)

Display This Question:

If In the absence of medical necessity, would you most prefer... = Vaginal delivery (birth)

How insistent are you that you want to deliver vaginally?

- I am extremely insistent, this is the only way I want to give birth (1)
- I would like to deliver vaginally but am open to surgical/medical interventions (2)

Display This Question:

If In the absence of medical necessity, would you most prefer... = Elective cesarean section (birth by surgery)

How insistent are you that you want to deliver by cesarean section?

- I am extremely insistent, this is the only way I want to give birth (1)
- I would like to deliver by cesarean section but am open to other birthing options (2)

End of Block: Birth preference

Start of Block: Attitudes towards birth

Display This Question:

If In the absence of medical necessity, would you most prefer... = Vaginal delivery (birth)

Do you have any fear/anxiety concerning birth? Pick the answer that best reflects your concerns

- I am only slightly fearful/anxious (1)
- I am moderately fearful/anxious (2)
- I am extremely fearful/anxious (3)

Display This Question:

If In the absence of medical necessity, would you most prefer... = Elective cesarean section (birth by surgery)

Do you have any fear/anxiety concerning birth? Pick the answer that best reflects your concerns

- I am only slightly fearful/anxious (1)
 - I am moderately fearful/anxious (2)
 - I am extremely fearful/anxious (3)
-

Display This Question:

If In the absence of medical necessity, would you most prefer... = Vaginal delivery (birth)

Does your fear (or lack-thereof) influence your preference for mode of birth?

- Yes, it makes me prefer a vaginal delivery (1)
 - Yes, it makes me question my preference for a vaginal delivery (2)
 - No, my childbirth preference is unrelated to my fear of birth (3)
 - I have no fear or anxiety that would influence my childbirth preference (4)
-

Display This Question:

If In the absence of medical necessity, would you most prefer... = Elective cesarean section (birth by surgery)

Does your fear (or lack-thereof) influence your preference for mode of birth?

- Yes, it is what influenced me to prefer a cesarean section (1)
- Yes, it makes me question my preference for a cesarean section (2)
- No, my childbirth preference is unrelated to my fear of birth (3)
- I have no fear or anxiety that would influence my childbirth preference (4)

End of Block: Attitudes towards birth

Start of Block: Decision making

Display This Question:

If In the absence of medical necessity, would you most prefer... = Vaginal delivery (birth)

What makes you prefer a vaginal delivery over a cesarean section? (Check all that apply)

- Vaginal delivery seems the most "natural" or "normal" (1)
- Vaginal delivery seems less painful or risky than a cesarean section (2)
- Vaginal delivery is less expensive than cesarean section (3)
- Other (4) _____

Display This Question:

If In the absence of medical necessity, would you most prefer... = Elective cesarean section (birth by surgery)

What makes you prefer a cesarean section over a vaginal delivery? (Check all that apply)

- Cesarean section seems the most "advanced" or "efficient" (1)
- Cesarean section seems less painful or risky than a vaginal delivery (2)
- Cesarean section may cost money, but can be scheduled and planned ahead (3)
- Other (4) _____

Display This Question:

If In the absence of medical necessity, would you most prefer... = Vaginal delivery (birth)

Who has the most influence on your preference for a vaginal delivery?

- Myself (1)
- My partner (2)
- My family (3)
- My friends (4)
- My doctor (5)
- Other (6) _____

Display This Question:

If In the absence of medical necessity, would you most prefer... = Elective cesarean section (birth by surgery)

Who has the most influence on your preference for a cesarean section?

- Myself (1)
- My partner (2)
- My family (3)
- My friends (4)
- My doctor (5)
- Other (6) _____

Display This Question:

If In the absence of medical necessity, would you most prefer... = Vaginal delivery (birth)

What has influenced your preference for a vaginal delivery? (Check all that apply)

- Perception of safety (1)
 - Perception of comfort (2)
 - Financial costs (ex: cheaper than a surgical delivery) (3)
 - Things I have read (articles, books) (4)
 - Things I have seen (movies, documentaries) (5)
-

Display This Question:

If In the absence of medical necessity, would you most prefer... = Elective cesarean section (birth by surgery)

What has influenced your preference for a cesarean section? (Check all that apply)

- Perception of safety (1)
 - Perception of comfort (2)
 - Time management (ex: the duration of labor) (3)
 - Things I have read (articles, books) (4)
 - Things I have seen (movies, documentaries) (5)
-

Display This Question:

If In the absence of medical necessity, would you most prefer... = Vaginal delivery (birth)

Do you believe that a vaginal delivery is...

- Safest for the mother (1)
- Safest for the infant (2)
- Safest for both (3)
- Safest for neither (4)

Display This Question:

If In the absence of medical necessity, would you most prefer... = Elective cesarean section (birth by surgery)

Do you believe that a cesarean section is...

- Safest for the mother (1)
- Safest for the infant (2)
- Safest for both (3)
- Safest for neither (4)

End of Block: Decision making

Start of Block: Pre-existing knowledge

Display This Question:

If In the absence of medical necessity, would you most prefer... = Vaginal delivery (birth)

Have you ever witnessed a birth? Which of the following have you seen? (Check all that apply)

- A live vaginal delivery (1)
- A live cesarean section (2)
- A video of a vaginal delivery (3)
- A video of a cesarean section (4)
- Pictures/illustrations of a vaginal delivery (5)
- Pictures/illustrations of a cesarean section (6)
- None of the above; I have never seen a birth (7)

Display This Question:

If In the absence of medical necessity, would you most prefer... = Elective cesarean section (birth by surgery)

Have you ever witnessed a birth? Which of the following have you seen? (Check all that apply)

- A live vaginal delivery (1)
- A live cesarean section (2)
- A video of a vaginal delivery (3)
- A video of a cesarean section (4)
- Pictures/illustrations of a vaginal delivery (5)
- Pictures/illustrations of a cesarean section (6)
- None of the above; I have never seen a birth (7)

Display This Question:

If In the absence of medical necessity, would you most prefer... = Vaginal delivery (birth)

Where have you obtained the *majority* of your information on birth? (Select the most appropriate response)

- Family and friends who have given birth (1)
- Family and friends who have not given birth (2)
- Books and articles on childbirth (3)
- Documentaries on childbirth (4)
- Movie and TV portrayals of childbirth (5)
- A doctor or another medical professional (6)

Display This Question:

If In the absence of medical necessity, would you most prefer... = Elective cesarean section (birth by surgery)

Where have you obtained the *majority* of your information on birth? (Select the most appropriate response)

- Family and friends who have given birth (1)
- Family and friends who have not given birth (2)
- Books and articles on childbirth (3)
- Documentaries on childbirth (4)
- Movie and TV portrayals of childbirth (5)
- A doctor or another medical professional (6)

End of Block: Pre-existing knowledge

Start of Block: Additional Questions

Were there any questions that you were particularly confused by or concerned about?
Would you like to elaborate on any of your responses?

- Yes (1)
 - No (2)
-

Would you be interested in answering any additional questions/participating in our interview process?

- Yes (2)
- No (3)

Please contact childbirthplanning@gmail.com or 302-831-1855 if you have any further questions or would be interested in being interviewed. We will follow up with you promptly and schedule an interview within the week. The interview process involves open-ended questions very similar to the questions of this survey.

End of Block: Additional Questions

Appendix B
INTERVIEW QUESTIONS

(Based on the survey questions)

Questions on preference

- When are you planning on having children and how many would you like to have?
- In the absence of medical necessity, what is your preferred mode of birth (vaginal, cesarean)?
- Where would you like to give birth (hospital, home, birthing center) and who would you like to be with you (friends, family)?
- In addition, who would you like to deliver your baby (doctor, nurse, midwife, etc.)?
- How determined are you to give birth in a particular way? What contributes to this level of determination?
- Would you create a birth plan ahead of time or wait to see what happens when the time comes to deliver your infant? How prepared would you like to be and why?
- In the future, do you plan on delivering through the same methods that you plan on delivering your first child?

Questions on motive

- (If cesarean) What are some of the non-medical reasons that you would want a cesarean section?

-(If vaginal) What are some of the reasons that you would choose vaginal delivery over cesarean section in non-medical circumstances?

-Do finances play a role in your decision making?

-Does perception of ease of one mode of birth over another contribute to your childbirth planning?

-Do you consider “cosmetic” motives when planning your birth? (For example: a concern that birth may change your body).

-Do things like a special birth date, timing, or convenience influence your decision making?

Questions on fear

-Do you have any major concerns about delivery? If so, what are they?

-Do you have any fear or anxiety about childbirth? If so, why?

-Do you believe that any of your anxiety comes from your knowledge of birth?

Knowing too much? Knowing too little?

-Do you have fear of a particular mode of birth (fear of vaginal, fear of cesarean)? If so, why?

-How would you classify this fear (high, medium, low) and why?

-What factors have contributed to this level of fear? Did you hear or see something particularly frightening pertaining to childbirth?

-What are your thoughts on childbirth in general. Do you think it is painful? Natural? Frightening? Exciting?

Questions on influence

-Where do you get your information on childbirth (the media, scholarly articles, etc.)?

-Who has the greatest influence on your decision of how/when you are going to give birth (friends, family members, partners, etc.)?

-In what form have you seen a birth (live, video, etc.)? And how has seeing a birth (or not seeing a birth) impacted your outlook on birth and childbirth planning?

-What are the main factors that have impacted your mindset concerning childbirth?

-What factor has influenced your thoughts on birth the most (witnessing one, reading about one, etc.)?

-Have you spoken to any medical professionals about having children in the future?

What did they advise you to do? How did they make you feel?

-How many women do you know who have had a cesarean section? Have had a vaginal delivery?

-Has anyone ever suggested or recommended a cesarean section to you? If so, who? And what reasoning did they give?

-Has anyone ever suggested or recommended a vaginal to you? If so, who? And what reasoning did they give?

Questions on risk assessment

- If you knew that the risks to you/your baby were higher with a certain mode of birth would you still choose it? What if it was only a slightly elevated risk? Is it enough of a risk to worry about?
- What if the risk was to your health but the baby would be safer? What if the risk was to your baby's health but you would be safer? Etc.
- Which mode of birth do you perceive to be the safest and most efficient? The most time effective or cost effective?
- Which mode of delivery (vaginal or cesarean) do you think is safest for the mother? The infant? Both?
- Do you question the safety or efficiency of vaginal delivery? What about cesarean section?
- Do you perceive cesarean section as more or less dangerous? More or less painful? What about vaginal delivery?
- Are you more concerned about the short term discomfort or long term effects of delivery?
- What do you perceive to be advantages or disadvantages of vaginal deliveries?
- What do you perceive to be advantages or disadvantages of cesarean sections?
- What is your image of birth in general? How about a vaginal deliver? Or a cesarean section?
- How do these perceptions or ideas inform your childbirth planning?

Appendix C

RAW DATA

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24
3	N / A	N / A	1	1	N / A	N / A	N / A	N / A	N / A	1	N / A	1	N / A	1	N / A	1	N / A	3	N / A	2 , 3	N / A	3	3
3	N / A	N / A	2	N / A	1	N / A	N / A	N / A	N / A	N / A	3	N / A	1	N / A	1 , 2 , 3	N / A	5	N / A	3	N / A	4	N / A	5
5	N / A	N / A	2	N / A	2	N / A	N / A	N / A	N / A	N / A	2	N / A	4	N / A	1 , 2	N / A	1	N / A	3	N / A	2 , 3	N / A	6
5	N / A	N / A	1	1	N / A	N / A	N / A	N / A	N / A	1	N / A	1	N / A	1 , 2	N / A	5	N / A	2	N / A	2 , 3	N / A	6	N / A
5	N / A	N / A	1	2	N / A	N / A	N / A	N / A	N / A	1	N / A	1	N / A	1 , 2 , 3	N / A	1	N / A	2	N / A	1 , 2 , 3	N / A	4	N / A
3	N / A	N / A	1	1	N / A	N / A	N / A	N / A	N / A	1	N / A	1	N / A	1 , 2 , 3	N / A	1	N / A	3	N / A	1 , 2 , 3	N / A	3	N / A
3	N / A	N / A	2	N / A	1	N / A	N / A	N / A	N / A	N / A	3	N / A	1	N / A	1 , 2 , 3	N / A	5	N / A	3	N / A	4	N / A	5
5	N / / /	N / / /	1	2	N / / /	N / / /	N / / /	N / / /	N / / /	2	N / / /	3	N / / /	1	N / / /	1	N / / /	3	N / / /	2	N / / /	3	N / / /

	A	A			A	A	A	A	A		A		A		A		A		A		A		A
3	N / A	N / A	1	2	N / A	N / A	N / A	N / A	N / A	2	N / A	2	N / A	1 , 2 , 3	N / A	1	N / A	3	N / A	2 , 3	N / A	1	N / A
3	N / A	N / A	1	1	N / A	N / A	N / A	N / A	N / A	1	N / A	1	N / A	2	N / A	1	N / A	3	N / A	1 , 2 , 3	N / A	6	N / A
3	N / A	N / A	1	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A
3	N / A	N / A	1	2	N / A	N / A	N / A	N / A	N / A	2	N / A	2	N / A	1	N / A	1	N / A	3	N / A	1 , 2 , 3	N / A	3	N / A
3	1	3	1	1	N / A	2	N / A	N / A	N / A	1	N / A	1	N / A	1 , 2 , 3 , 4 , 5	N / A	1	N / A	3	N / A	2 , 3	N / A	3	N / A
4	1	3	1	2	N / A	2	N / A	2 , 3	N / A	2	N / A	3	N / A	2 , 3 , 4	N / A	1	N / A	3	N / A	1 , 2 , 3	N / A	3	N / A
3	1	3	1	1	N / A	2	N / A	1 , 2 , 3	N / A	1	N / A	3	N / A	1 , 4	N / A	1	N / A	3	N / A	3	N / A	4	N / A
3	1	3	1	2	N / A	3	N / A	1 , 3	N / A	2	N / A	3	N / A	1	N / A	3	N / A	3	N / A	2	N / A	5	N / A
3	1	3	1	2	N	3	N	1	N	1	N	3	N	1	N	1	N	3	N	4	N	1	N

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3	1	3	2	N	2	N	3	N	1	N	2	N	1	N	2	N	1	N	2	N	4	N	5
				/	/	/	,	/	/	/	,	/	/	/	/	/	/	/	/	/	/	/	
				A	A	A	3	A	A	A	3	A	A	A	A	A	A	A	A	A	A	A	
3	2	3	1	2	N	3	N	1	N	2	N	2	N	1	N	5	N	2	N	2	N	3	N
				/	/	/	,	/	/	/	,	/	/	/	/	/	/	/	/	/	/	/	/
				A	A	A	2	A	A	A	3	A	A	A	A	3	A	A	A	A	A	A	A
3	1	2	1	1	N	1	N	1	N	3	N	1	N	1	N	1	N	3	N	1	N	3	N
				/	/	/	,	/	/	/	,	/	/	/	/	/	/	/	/	/	/	/	/
				A	A	A	3	A	A	A	2	A	A	A	A	3	A	A	A	A	A	A	A
2	1	3	1	1	N	2	N	2	N	2	N	3	N	1	N	1	N	3	N	2	N	3	N
				/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
				A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
3	1	3	1	2	N	3	N	1	N	2	N	2	N	2	N	3	N	3	N	2	N	1	N
				/	/	/	,	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
				A	A	A	3	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
3	1	3	1	1	N	3	N	1	N	1	N	3	N	1	N	1	N	3	N	3	N	3	N
				/	/	/	,	/	/	/	,	/	/	/	/	/	/	/	/	/	/	/	/
				A	A	A	2	A	A	A	3	A	A	A	A	3	A	A	A	A	A	A	A
3	2	3	2	N	1	N	3	N	1	N	2	N	1	N	2	N	1	N	3	N	2	N	1
				/	/	/	,	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
				A	A	A	3	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
3	1	2	1	2	N	2	N	2	N	2	N	3	N	1	N	1	N	3	N	2	N	5	N
				/	/	/	/	/	/	/	/	/	/	,	/	/	/	/	/	/	/	/	/
				A	A	A	A	A	A	A	A	A	A	2	A	A	A	A	A	A	A	A	A
3	1	2	1	2	N	3	N	1	N	2	N	3	N	1	N	3	N	3	N	4	N	1	N
				/	/	/	,	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
				A	A	A	1	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A

					A		A	2 , 3	A		A		A		A		A		A		A		A
2	1	2	1	2	N / A	3	N / A	1 , 3	N / A	3	N / A	2	N / A	1 , 2 , 4	N / A	3	N / A	4	N / A	4	N / A	1	N / A
3	1	2	1	2	N / A	3	N / A	1 , 3	N / A	1	N / A	4	N / A	1 , 4	N / A	1	N / A	3	N / A	4	N / A	3	N / A
2	1	2	1	2	N / A	3	N / A	1 , 2 , 3	N / A	2	N / A	2	N / A	1	N / A	1	N / A	2	N / A	1 , 2 , 3	N / A	3	N / A
3	2	3	1	2	N / A	3	N / A	1 , 2 , 3	N / A	2	N / A	3	N / A	1 , 2 , 4	N / A	1	N / A	3	N / A	3	N / A	5	N / A
3	1	2	1	2	N / A	3	N / A	1 , 3	N / A	1	N / A	4	N / A	2	N / A	1	N / A	3	N / A	2	N / A	6	N / A
3	5	2	1	2	N / A	3	N / A	1 , 3	N / A	2	N / A	1	N / A	1 , 2	N / A	1	N / A	1	N / A	2 , 3	N / A	1	N / A
3	1	2	1	2	N / A	3	N / A	1 , 3	N / A	3	N / A	2	N / A	1	N / A	1	N / A	3	N / A	2 , 3	N / A	3	N / A
2	1	3	2	N / A	1	N / A	3	N / A	1 , 3	N / A	2	N / A	1	N / A	2	N / A	1	N / A	3	N / A	4	N / A	1
4	1	3	1	2	N / A	2	N / A	1 , 2 , 3	N / A	1	N / A	4	N / A	1	N / A	1	N / A	3	N / A	1	N / A	1	N / A
2	1	3	1	2	N / A	3	N / A	1 , 3	N / A	1	N / A	3	N / A	1	N / A	5	N / A	2	N / A	2	N / A	5	N / A
3	1	3	1	2	N	3	N	1	N	1	N	3	N	1	N	1	N	3	N	2	N	5	N

					/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
3	2	3	1	2	N	1	N	2	N	1	N	3	N	1	N	1	N	3	N	4	N	4	N	N
					/	/	/	, 3	/	/	/	/	, 3	/	/	/	/	/	/	/	/	/	/	/
					A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
3	1	3	1	2	N	3	N	1	N	3	N	3	N	1	N	1	N	3	N	2	N	5	N	N
					/	/	/	, 2	/	/	/	/	, 2	/	/	/	/	/	/	/	/	/	/	/
					A	A	A	, 3	A	A	A	A	, 3	A	A	A	A	A	A	A	A	A	A	A
3	3	3	1	2	N	3	N	1	N	3	N	3	N	1	N	1	N	2	N	4	N	1	N	N
					/	/	/	, 3	/	/	/	/	, 4	/	/	/	/	/	/	/	/	/	/	/
					A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
2	4	1	1	2	N	3	N	1	N	2	N	2	N	1	N	1	N	4	N	2	N	1	N	N
					/	/	/	, 2	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
					A	A	A	, 3	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
3	1	2	1	2	N	3	N	1	N	1	N	3	N	1	N	6	N	3	N	1	N	3	N	N
					/	/	/	, 2	/	/	/	/	, 2	/	/	/	/	/	/	/	/	/	/	/
					A	A	A	, 3	A	A	A	A	, 4	A	A	A	A	A	A	A	A	A	A	A
2	1	2	1	1	N	3	N	1	N	1	N	3	N	1	N	1	N	3	N	2	N	3	N	N
					/	/	/	, 3	/	/	/	/	, 2	/	/	/	/	/	/	/	/	/	/	/
					A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
3	1	2	1	2	N	3	N	1	N	1	N	3	N	1	N	1	N	4	N	2	N	4	N	N
					/	/	/	, 2	/	/	/	/	, 2	/	/	/	/	/	/	/	/	/	/	/
					A	A	A	, 3	A	A	A	A	, 3	A	A	A	A	A	A	A	A	A	A	A
2	1	3	2	N	2	N	3	N	1	N	2	N	1	N	2	N	1	N	3	N	2	N	1	N
				/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
				A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
2	1	3	1	2	N	1	N	2	N	1	N	1	N	1	N	1	N	3	N	2	N	3	N	N
					/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
					A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A

					A		A	3	A		A		A	4	A		A		A	3	A		A
3	1	2	1	2	N / A	3	N / A	1 , 3	N / A	3	N / A	3	N / A	4	N / A	1	N / A	4	N / A	2 , 3	N / A	1	N / A
3	1	3	1	2	N / A	3	N / A	1 , 3	N / A	1	N / A	4	N / A	1 , 2 , 3 , 4	N / A	1	N / A	3	N / A	2 , 3	N / A	1	N / A
3	1	2	1	2	N / A	3	N / A	3	N / A	3	N / A	3	N / A	4	N / A	1	N / A	4	N / A	2	N / A	3	N / A
2	1	2	1	1	N / A	2	N / A	2 , 3	N / A	1	N / A	1	N / A	1 , 2 , 3 , 4 , 5	N / A	1	N / A	3	N / A	2 , 3	N / A	3	N / A
2	1	3	1	2	N / A	2	N / A	2	N / A	3	N / A	3	N / A	1	N / A	1	N / A	4	N / A	2 , 3	N / A	1	N / A
2	1	1	1	2	N / A	3	N / A	1 , 3	N / A	2	N / A	2	N / A	1 , 4	N / A	1	N / A	3	N / A	2	N / A	1	N / A
3	1	1	1	1	N / A	1	N / A	1 , 4	N / A	1	N / A	3	N / A	1	N / A	1	N / A	3	N / A	2 , 3	N / A	4	N / A
3	1	2	1	2	N / A	3	N / A	1 , 2 , 3	N / A	2	N / A	3	N / A	1 , 4 , 5	N / A	1	N / A	4	N / A	2 , 3	N / A	3	N / A
3	1	3	1	2	N / A	1	N / A	2 , 3	N / A	1	N / A	3	N / A	1 , 4	N / A	1	N / A	3	N / A	2 , 3	N / A	1	N / A
2	1	2	1	2	N / /	3	N / /	2 , /	N / /	2	N / /	2	N / /	1 , /	N / /	1	N / /	1	N / /	4	N / /	1	N / /

					A		A	3	A		A		A	3	A		A		A		A		A
3	1	3	1	2	N / A	3	N / A	1 , 3	N / A	2	N / A	3	N / A	2	N / A	3	N / A	3	N / A	2 , 3	N / A	1	N / A
2	1	2	2	N / A	2	N / A	3	N / A	1	N / A	2	N / A	1	N / A	2	N / A	1	N / A	3	N / A	2 , 3	N / A	1
3	1	2	1	1	N / A	2	N / A	1 , 2 , 3	N / A	2	N / A	3	N / A	1 , 2 , 3 , 4	N / A	1	N / A	3	N / A	1 , 2 , 3	N / A	6	N / A
3	1	3	2	N / A	2	N / A	3	N / A	1 , 3	N / A	3	N / A	1	N / A	1 , 2	N / A	1	N / A	2	N / A	4	N / A	1
2	1	2	1	2	N / A	3	N / A	1 , 3	N / A	2	N / A	3	N / A	1	N / A	1	N / A	3	N / A	2 , 3	N / A	4	N / A
3	1	2	1	2	N / A	3	N / A	1 , 3	N / A	2	N / A	2	N / A	1	N / A	2	N / A	1	N / A	2 , 3	N / A	5	N / A
3	1	2	1	2	N / A	3	N / A	1 , 3	N / A	3	N / A	3	N / A	1 , 5	N / A	5	N / A	4	N / A	2 , 3	N / A	1	N / A
2	4	2	1	2	N / A	3	N / A	1 , 2 , 3	N / A	3	N / A	3	N / A	2 , 3 , 4	N / A	1	N / A	3	N / A	3	N / A	5	N / A
2	1	3	1	1	N / A	2	N / A	1 , 2 , 3	N / A	1	N / A	1	N / A	3 , 4	N / A	1	N / A	3	N / A	2 , 3	N / A	1	N / A
2	2	2	1	2	N / A	3	N / A	1 , 3	N / A	2	N / A	3	N / A	1	N / A	1	N / A	3	N / A	4	N / A	1	N / A
2	1	3	1	2	N / A	3	N / A	1 , 2	N / A	3	N / A	2	N / A	1 , 2	N / A	1	N / A	1	N / A	4	N / A	1	N / A

					/	/	,	/	/	/	,	/	/	/	/	/	/	/	/	/	/	/	
					A	A	2	A	A	A	2	A	A	A	A	A	A	A	A	A	A	A	
3	3	2	1	1	N	3	N	1	N	2	N	3	N	1	N	1	N	3	N	3	N	2	N
					/	/	,	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
					A	A	2	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
2	1	3	1	2	N	3	N	1	N	1	N	3	N	1	N	1	N	3	N	2	N	5	N
					/	/	,	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
					A	A	3	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
3	1	3	1	2	N	1	N	1	N	2	N	3	N	1	N	1	N	4	N	2	N	1	N
					/	/	,	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
					A	A	2	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
2	1	2	1	2	N	3	N	1	N	2	N	1	N	1	N	5	N	3	N	2	N	1	N
					/	/	,	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
					A	A	3	A	A	A	A	A	A	2	A	4	A	A	A	3	A	A	A
2	1	3	2	N	1	N	3	N	1	N	3	N	2	N	1	N	1	N	3	N	2	N	1
				/	/	,	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
					A	A	2	A	A	A	A	A	A	A	2	A	A	A	A	A	A	A	A
2	1	3	1	2	N	3	N	1	N	2	N	3	N	1	N	1	N	3	N	4	N	1	N
					/	/	,	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
					A	A	3	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
3	1	3	1	2	N	3	N	1	N	3	N	3	N	1	N	1	N	3	N	4	N	4	N
					/	/	,	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
					A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
2	1	3	2	N	2	N	3	N	1	N	1	N	1	N	2	N	1	N	3	N	1	N	1
				/	/	,	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
					A	A	A	3	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
2	1	3	1	2	N	2	N	1	N	2	N	3	N	2	N	3	N	3	N	4	N	6	N
					/	/	,	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
					A	A	2	A	A	A	A	A	A	4	A	A	A	A	A	A	A	A	A

								3																
3	2	2	1	1	N / A	3	N / A	1, 2	N / A	2	N / A	1	N / A	1, 2, 4	N / A	1	N / A	3	N / A	2, 3	N / A	1	N / A	
2	1	2	1	2	N / A	3	N / A	1, 2	N / A	3	N / A	2	N / A	1, 4	N / A	3	N / A	3	N / A	2, 3	N / A	1	N / A	
3	1	2	1	1	N / A	3	N / A	1, 3	N / A	2	N / A	3	N / A	1, 2, 4	N / A	1	N / A	3	N / A	2, 3	N / A	1	N / A	
2	2	3	1	2	N / A	3	N / A	1	N / A	3	N / A	3	N / A	1, 2	N / A	1	N / A	4	N / A	4	N / A	1	N / A	
3	1	3	1	2	N / A	2	N / A	1, 3	N / A	2	N / A	2	N / A	1, 3, 4	N / A	1	N / A	3	N / A	2, 3	N / A	1	N / A	
2	1	3	1	2	N / A	3	N / A	1, 3	N / A	3	N / A	2	N / A	2	N / A	1	N / A	1	N / A	2	N / A	1	N / A	
2	3	3	1	2	N / A	2	N / A	2	N / A	1	N / A	2	N / A	1	N / A	1	N / A	3	N / A	2, 3	N / A	6	N / A	
2	1	3	2	N / A	2	N / A	3	N / A	1, 3	N / A	2	N / A	1	N / A	2, 4	N / A	1	N / A	1	N / A	2, 3	N / A	1	
2	1	2	1	2	N / A	3	N / A	1, 3	N / A	2	N / A	3	N / A	1	N / A	1	N / A	3	N / A	2, 3	N / A	4	N / A	
2	1	3	1	1	N / A	3	N / A	1, 3	N / A	3	N / A	3	N / A	1, 2, 3, 4	N / A	1	N / A	3	N / A	3	N / A	3	N / A	
2	1	2	1	2	N	3	N	1	N	2	N	3	N	1	N	1	N	3	N	2	N	1	N	

					/ A		/ A	, 3	/ A		/ A		/ A	, 3	/ A		/ A		/ A	, 3	/ A		/ A
2	1	1	1	2	N / A	3	N / A	1, 2, 3	N / A	1	N / A	3	N / A	1, 2, 3, 4, 5	N / A	1	N / A	3	N / A	2, 3	N / A	3	N / A
3	1	2	1	1	N / A	2	N / A	1, 2, 3	N / A	1	N / A	1	N / A	1, 2, 3, 4	N / A	1	N / A	3	N / A	3	N / A	1	N / A
2	2	3	2	N / A	1	N / A	3	N / A	1	N / A	3	N / A	1	N / A	1, 2, 3, 4	N / A	1	N / A	1	N / A	2, 3	N / A	1
3	1	3	1	2	N / A	3	N / A	1, 2	N / A	2	N / A	3	N / A	1	N / A	1	N / A	3	N / A	2, 3	N / A	6	N / A
2	1	1	1	2	N / A	2	N / A	1, 2, 3	N / A	1	N / A	3	N / A	2, 3, 4	N / A	1	N / A	N / A	N / A	4	N / A	1	N / A
2	1	2	1	1	N / A	2	N / A	2, 3	N / A	1	N / A	3	N / A	1, 3, 4	N / A	1	N / A	3	N / A	2, 3	N / A	3	N / A
2	1	2	1	2	N / A	3	N / A	1, 3	N / A	1	N / A	3	N / A	1, 2	N / A	1	N / A	3	N / A	2, 3	N / A	1	N / A

3	1	2	2	N / A	2	N / A	3	N / A	1, 2, 3	N / A	2	N / A	1		1, 2, 3, 4	N / A	3	N / A	3	N / A	2, 3	N / A	1
2	3	3	1	1	N / A	3	N / A	1, 2, 3	N / A	1	N / A	3	N / A	1, 2, 3, 4	N / A	1	N / A	3	N / A	2, 3	N / A	1	N / A
2	1	2	1	1	N / A	2	N / A	2, 3	N / A	2	N / A	3	N / A	1	N / A	1	N / A	3	N / A	1, 2, 3	N / A	1	N / A
2	1	2	1	2	N / A	3	N / A	1, 3	N / A	1	N / A	3	N / A	1	N / A	5	N / A	1	N / A	4	N / A	1	N / A
3	5	2	1	1	N / A	1	N / A	2, 3	N / A	2	N / A	3	N / A	1	N / A	1	N / A	3	N / A	1, 2, 3	N / A	1	N / A
3	1	2	1	1	N / A	1	N / A	2, 3	N / A	1	N / A	3	N / A	1, 4, 5	N / A	N / A	N / A	3	N / A	1, 2, 3	N / A	3	N / A
3	1	3	1	1	N / A	2	N / A	1, 2, 3	N / A	2	N / A	3	N / A	1	N / A	1	N / A	3	N / A	1	N / A	6	N / A
2	1	3	1	2	N / A	3	N / A	1, 2, 3	N / A	3	N / A	3	N / A	1, 4	N / A	1	N / A	3	N / A	2	N / A	4	N / A
2	1	2	1	2	N / A	3	N / A	1, 3	N / A	2	N / A	2	N / A	1, 4	N / A	1	N / A	3	N / A	2, 3	N / A	1	N / A

2	3	2	1	2	N / A	1	N / A	1, 2, 3	N / A	2	N / A	2	N / A	1	N / A	1	N / A	3	N / A	3	N / A	4	N / A
3	3	2	1	2	N / A	2	N / A	1, 2, 3	N / A	2	N / A	1	N / A	1, 2, 3, 4	N / A	1	N / A	3	N / A	2, 3	N / A	5	N / A
3	3	2	1	2	N / A	1	N / A	2	N / A	3	N / A	2	N / A	1	N / A	2	N / A	3	N / A	1	N / A	1	N / A
3	3	1	1	1	N / A	1	N / A	2	N / A	2	N / A	1	N / A	1, 2, 3, 4	N / A	1	N / A	3	N / A	2, 3	N / A	1	N / A
4	1	2	2	N / A	2	N / A	3	N / A	1, 3	N / A	3	N / A	2	N / A	4	N / A	1	N / A	3	N / A	4	N / A	5
2	1	3	1	2	N / A	3	N / A	1, 2, 3	N / A	2	N / A	3	N / A	1, 2	N / A	1	N / A	3	N / A	2, 3	N / A	1	N / A
5	1	3	1	2	N / A	3	N / A	1, 2, 3	N / A	3	N / A	3	N / A	2, 3, 4	N / A	5	N / A	1	N / A	4	N / A	3	N / A
3	2	2	1	2	N / A	2	N / A	1, 2, 3	N / A	3	N / A	3	N / A	1, 2, 3, 4	N / A	1	N / A	4	N / A	2, 3	N / A	1	N / A
4	1	2	2	N / A	2	N / A	3	N / A	1	N / A	3	N / A	1	N / A	1, 3	N / A	1	N / A	1	N / A	2, 3	N / A	3

3	1	2	2	N / A	2	N / A	3	N / A	1	N / A	2	N / A	3	N / A	5	N / A	1	N / A	4	N / A	2	N / A	1
5	1	3	1	2	N / A	3	N / A	1	N / A	1	N / A	3	N / A	4	N / A	1	N / A	3	N / A	2	N / A	1	N / A
2	2	1	1	2	N / A	3	N / A	1	N / A	2	N / A	3	N / A	1	N / A	5	N / A	3	N / A	2	N / A	1	N / A
5	1	3	1	2	N / A	2	N / A	1	N / A	3	N / A	2	N / A	1	N / A	1	N / A	3	N / A	1	N / A	1	N / A
3	1	3	1	2	N / A	2	N / A	1	N / A	1	N / A	1	N / A	2	N / A	1	N / A	1	N / A	2	N / A	1	N / A
4	1	3	1	2	N / A	2	N / A	1	N / A	2	N / A	3	N / A	1	N / A	1	N / A	3	N / A	3	N / A	4	N / A
2	1	3	1	1	N / A	1	N / A	2	N / A	1	N / A	1	N / A	1	N / A	1	N / A	3	N / A	1	N / A	3	N / A
3	1	3	1	2	N / A	3	N / A	1	N / A	2	N / A	3	N / A	1	N / A	1	N / A	3	N / A	1	N / A	1	N / A
2	1	3	1	2	N / A	2	N / A	1	N / A	3	N / A	2	N / A	1	N / A	1	N / A	3	N / A	2	N / A	3	N / A
4	1	2	1	2	N	2	N	1	N	3	N	3	N	1	N	1	N	3	N	2	N	3	N

					/ A		/ A	, 2 , 3	/ A		/ A		/ A	, 4 , 5	/ A		/ A		/ A	, 3	/ A		/ A
3	2	3	2	N / A	1 / A	N / A	3	N / A	1 , 3	N / A	3	N / A	1	N / A	2	N / A	1	N / A	2	N / A	4	N / A	5
4	1	2	2	N / A	1 / A	N / A	3	N / A	1	N / A	3	N / A	1	N / A	1 , 2 , 3 , 4	N / A	1	N / A	3	N / A	2 , 3	N / A	3
2	1	2	1	2	N / A	2	N / A	2	N / A	1	N / A	3	N / A	1 , 2 , 3 , 4	N / A	1	N / A	3	N / A	2 , 3	N / A	1	N / A
3	1	3	1	2	N / A	3	N / A	1 , 2 , 3	N / A	1	N / A	1	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A
2	1	2	1	2	N / A	3	N / A	1 , 2 , 3	N / A	2	N / A	1	N / A	2 , 4	N / A	5	N / A	1	N / A	2 , 3	N / A	1	N / A
2	2	2	1	2	N / A	3	N / A	1 , 3	N / A	2	N / A	2	N / A	3 , 4	N / A	1	N / A	2	N / A	4	N / A	1	N / A
4	1	2	2	N / A	1 / A	N / A	3	N / A	1 , 3	N / A	3	N / A	3	N / A	N / A	N / A	1	N / A	4	N / A	4	N / A	1
2	2	3	1	2	2	3	N / A	1 , 2 , 3	N / A	2	N / A	1	N / A	1 , 2 , 4	N / A	1	N / A	1	N / A	2	N / A	1	N / A

3	1	2	1	1	2	3	N / A	1 , 3	N / A	3	N / A	1	N / A	1 , 2 , 4	N / A	1	N / A	3	N / A	2	N / A	1	N / A
3	1	2	1	2	2	2	N / A	1 , 2 , 3	N / A	3	N / A	3	N / A	1 , 2 , 4	N / A	2	N / A	3	N / A	3	N / A	1	N / A
3	2	3	1	2	2	3	N / A	1 , 2 , 3	N / A	2	N / A	2	N / A	1	N / A	1	N / A	3	N / A	2	N / A	3	N / A
3	1	3	1	2	2	2	N / A	1 , 2 , 3	N / A	1	N / A	1	N / A	1 , 2	N / A	1	N / A	1	N / A	2 , 3	N / A	1	N / A
3	1	2	1	1	2	3	N / A	1 , 3	N / A	1	N / A	1	N / A	1 , 2 , 4	N / A	1	N / A	3	N / A	2 , 3	N / A	4	N / A
3	1	3	1	2	2	3	N / A	1 , 3	N / A	1	N / A	4	N / A	1	N / A	1	N / A	3	N / A	2 , 3	N / A	1	N / A
2	1	3	1	2	2	3	N / A	1 , 3	N / A	2	N / A	3	N / A	1 , 3 , 4	N / A	1	N / A	3	N / A	2	N / A	1	N / A
2	1	3	1	2	2	3	N / A	1 , 3	N / A	2	N / A	3	N / A	4	N / A	1	N / A	3	N / A	2	N / A	3	N / A
3	1	2	1	2	2	3	N / A	1 , 3	N / A	1	N / A	4	N / A	1 , 3 , 4	N / A	1	N / A	3	N / A	2 , 3	N / A	1	N / A
3	1	3	2	N	2	N	3	N	1	N	3	N	1	N	2	N	1	N	3	N	1	N	1

					/A		/A		/A		/A		/A		/A	,3	/A		/A		/A	,2	/A		,3	/A	
2	1	2	1	1	N/A	3	N/A	1	N/A	3	N/A	2	N/A	1	N/A	,2	N/A	1	N/A	3	N/A	4	N/A	3	N/A	N/A	
2	1	2	1	1	N/A	3	N/A	1	N/A	3	N/A	3	N/A	1	N/A	,4	N/A	1	N/A	3	N/A	2	N/A	1	N/A	N/A	
3	3	2	1	2	N/A	3	N/A	1	N/A	1	N/A	3	N/A	2	N/A	1	N/A	3	N/A	2	N/A	4	N/A	4	N/A	N/A	
2	1	3	1	2	N/A	3	N/A	1	N/A	1	N/A	3	N/A	1	N/A	1	N/A	3	N/A	4	N/A	5	N/A	N/A			
2	1	3	1	2	N/A	3	N/A	1	N/A	2	N/A	3	N/A	2	N/A	1	N/A	3	N/A	3	N/A	1	N/A	N/A			
4	1	2	1	1	N/A	1	N/A	2	N/A	1	N/A	1	N/A	1	N/A	1	N/A	3	N/A	2	N/A	1	N/A	N/A			
2	1	2	1	2	N/A	3	N/A	1	N/A	3	N/A	3	N/A	1	N/A	1	N/A	3	N/A	1	N/A	1	N/A	1	N/A	N/A	
2	1	2	2	N/A	1	N/A	3	N/A	1	N/A	2	N/A	1	N/A	2	N/A	1	N/A	1	N/A	1	N/A	2	N/A	1	N/A	
2	5	2	1	2	N/A	2	N/A	1	N/A	2	N/A	3	N/A	1	N/A	,3	N/A	3	N/A	3	N/A	2	N/A	1	N/A	N/A	
3	1	2	1	2	N/A	3	N/A	1	N/A	3	N/A	3	N/A	1	N/A	,2	N/A	1	N/A	1	N/A	2	N/A	1	N/A	N/A	

									3															
3	1	3	1	2	N / A	3	N / A	1	N / A	2	N / A	3	N / A	2	N / A	1	N / A	1	N / A	2	N / A	1	N / A	N / A
2	3	3	2	N / A	2	N / A	3	N / A	1	N / A	3	N / A	1	N / A	2	N / A	1	N / A	3	N / A	1	N / A	5	N / A
3	2	3	1	2	N / A	3	N / A	1	N / A	3	N / A	3	N / A	2	N / A	1	N / A	3	N / A	4	N / A	2	N / A	N / A
2	2	2	1	1	N / A	2	N / A	1	N / A	2	N / A	2	N / A	5	N / A	1	N / A	2	N / A	2	N / A	1	N / A	N / A
3	2	3	1	2	N / A	2	N / A	1	N / A	2	N / A	1	N / A	2	N / A	3	N / A	3	N / A	3	N / A	1	N / A	N / A
3	1	3	1	2	N / A	3	N / A	1	N / A	2	N / A	2	N / A	1	N / A	5	N / A	3	N / A	2	N / A	5	N / A	N / A
2	4	2	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A
3	4	2	1	2	N / A	3	N / A	1	N / A	2	N / A	3	N / A	1	N / A	1	N / A	3	N / A	1	N / A	1	N / A	N / A
3	5	2	1	1	N / A	3	N / A	1	N / A	1	N / A	1	N / A	1	N / A	1	N / A	3	N / A	1	N / A	1	N / A	N / A
2	1	2	1	2	N / A	3	N / A	1	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A

					A		A		A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
2	1	3	1	2	N / A	3	N / A	1 , 3	N / A	2	N / A	2	N / A	1	N / A	1	N / A	3	N / A	2	N / A	1	N / A
3	1	2	1	1	N / A	1	N / A	2 , 3	N / A	1	N / A	4	N / A	3 , 4 , 5	N / A	1	N / A	3	N / A	1 , 2 , 3	N / A	3	N / A
5	1	3	1	2	N / A	2	N / A	1 , 3	N / A	2	N / A	3	N / A	5	N / A	1	N / A	3	N / A	3	N / A	3	N / A
2	1	3	1	2	N / A	3	N / A	1 , 3	N / A	1	N / A	3	N / A	2 , 4	N / A	1	N / A	3	N / A	4	N / A	1	N / A
4	1	2	1	2	N / A	3	N / A	1 , 3	N / A	2	N / A	1	N / A	1 , 2 , 3 , 4	N / A	1	N / A	3	N / A	4	N / A	1	N / A
3	6	3	1	2	N / A	3	N / A	1 , 2 , 3	N / A	2	N / A	3	N / A	1 , 3 , 4	N / A	5	N / A	3	N / A	2 , 3	N / A	3	N / A
2	1	2	1	2	N / A	3	N / A	1	N / A	2	N / A	2	N / A	1	N / A	1	N / A	3	N / A	2	N / A	5	N / A
2	1	3	1	2	N / A	3	N / A	1 , 3	N / A	2	N / A	2	N / A	1 , 2 , 3 , 4	N / A	5	N / A	3	N / A	2 , 3	N / A	5	N / A
4	1	2	1	1	N / A	2	N / A	2 , 3	N / A	3	N / A	3	N / A	1 , 4	N / A	3	N / A	1	N / A	4	N / A	1	N / A
3	1	2	2	N /	2	N /	3	N /	1 ,	N /	3	N /	1	N /	2	N /	1	N /	3	N /	2 ,	N /	1

				A		A		A	3	A		A		A	4	A		A		A	3	A	
4	1	2	1	2	N / A	3	N / A	1, 2, 3	N / A	2	N / A	2	N / A	1	N / A	6	N / A	4	N / A	2, 3	N / A	1	N / A
4	1	2	1	2	N / A	3	N / A	1, 3	N / A	2	N / A	2	N / A	2, 4	N / A	1	N / A	2	N / A	3	N / A	1	N / A
4	1	2	1	2	N / A	2	N / A	1, 2, 3	N / A	2	N / A	3	N / A	1, 3, 4, 5	N / A	6	N / A	3	N / A	2, 3	N / A	6	N / A
3	1	2	1	2	N / A	3	N / A	1, 3	N / A	2	N / A	3	N / A	1, 2, 4	N / A	1	N / A	1	N / A	2	N / A	1	N / A
5	1	3	1	2	N / A	2	N / A	1, 2, 3	N / A	2	N / A	3	N / A	1, 4	N / A	1	N / A	3	N / A	2, 3	N / A	1	N / A
3	3	2	1	2	N / A	3	N / A	1, 3	N / A	1	N / A	2	N / A	4	N / A	1	N / A	4	N / A	4	N / A	5	N / A
2	1	3	1	2	N / A	3	N / A	1, 3	N / A	1	N / A	1	N / A	1, 2, 3, 4	N / A	1	N / A	3	N / A	2, 3	N / A	3	N / A
4	1	2	1	2	N / A	3	N / A	1, 3	N / A	2	N / A	3	N / A	5	N / A	6	N / A	3	N / A	2, 3	N / A	1	N / A
5	4	2	1	2	N / A	2	N / A	1, 2	N / A	3	N / A	3	N / A	2, 4	N / A	1	N / A	3	N / A	4	N / A	3	N / A

					/A	/A	,3	/A	/A	/A	,2	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	
2	1	3	2	N/A	2	N/A	3	N/A	1	N/A	3	N/A	1	N/A	2	N/A	1	N/A	4	N/A	4	N/A	1
3	2	2	1	2	N/A	3	N/A	3	N/A	3	N/A	1	N/A	1	N/A	3	N/A	2	N/A	2	N/A	4	N/A
4	1	2	1	2	N/A	2	N/A	2	N/A	1	N/A	3	N/A	5	N/A	1	N/A	2	N/A	1	N/A	6	N/A
2	1	2	1	2	N/A	3	N/A	1	N/A	2	N/A	1	N/A	1	N/A	1	N/A	3	N/A	2	N/A	1	N/A
2	3	3	1	2	N/A	3	N/A	1	N/A	1	N/A	2	N/A	2	N/A	5	N/A	3	N/A	4	N/A	1	N/A
4	1	2	1	2	N/A	2	N/A	1	N/A	2	N/A	2	N/A	1	N/A	1	N/A	3	N/A	4	N/A	1	N/A
2	1	2	1	2	N/A	3	N/A	1	N/A	3	N/A	3	N/A	1	N/A	1	N/A	3	N/A	3	N/A	1	N/A
4	1	2	1	1	N/A	3	N/A	2	N/A	1	N/A	1	N/A	5	N/A	N/A	N/A	3	N/A	2	N/A	1	N/A
3	1	3	1	1	N/A	3	N/A	1	N/A	3	N/A	3	N/A	1	N/A	1	N/A	1	N/A	2	N/A	1	N/A
2	1	3	1	1	N/A	3	N/A	1	N/A	1	N/A	3	N/A	1	N/A	1	N/A	3	N/A	3	N/A	1	N/A

4	1	2	1	1	N / A	3	N / A	1, 3	N / A	1	N / A	3	N / A	1, 2, 4	N / A	1	N / A	3	N / A	2, 3	N / A	3	N / A
3	1	3	1	2	N / A	3	N / A	1	N / A	2	N / A	3	N / A	4	N / A	1	N / A	4	N / A	4	N / A	1	N / A
2	1	3	1	2	N / A	2	N / A	2	N / A	1	N / A	3	N / A	1	N / A	1	N / A	3	N / A	N / A	N / A	N / A	N / A
4	1	3	1	1	N / A	3	N / A	1, 2, 3	N / A	3	N / A	1	N / A	4, 5	N / A	1	N / A	3	N / A	2, 3	N / A	1	N / A
3	1	3	1	2	N / A	3	N / A	1, 3	N / A	1	N / A	2	N / A	1, 4	N / A	1	N / A	3	N / A	2	N / A	1	N / A
3	1	2	2	N / A	2	N / A	3	N / A	1, 3	N / A	2	N / A	3	N / A	1, 2, 3	N / A	1	N / A	3	N / A	2, 3	N / A	1
2	1	3	2	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A
4	1	2	1	2	N / A	3	N / A	1, 3	N / A	3	N / A	3	N / A	2, 4	N / A	1	N / A	3	N / A	4	N / A	1	N / A
2	3	2	1	2	N / A	1	N / A	1, 2, 3	N / A	2	N / A	3	N / A	1	N / A	1	N / A	3	N / A	2, 3	N / A	1	N / A
3	1	3	1	2	N / A	3	N / A	1, 3	N / A	2	N / A	1	N / A	1, 2	N / A	2	N / A	3	N / A	4	N / A	1	N / A
3	1	3	1	2	N / A	3	N / A	1, 2	N / A	2	N / A	2	N / A	1, 4	N / A	1	N / A	3	N / A	1, 2	N / A	1	N / A

																				3			
3	1	3	1	2	N / A	3	N / A	1, 2, 3	N / A	3	N / A	3	N / A	1	N / A	1	N / A	3	N / A	4	N / A	1	N / A
4	1	2	1	1	N / A	2	N / A	1, 2, 3	N / A	1	N / A	3	N / A	1, 2, 3, 4	N / A	1	N / A	3	N / A	2, 3	N / A	1	N / A
3	1	2	1	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A		N / A	N / A	N / A	N / A	N / A
2	2	2	1	2	N / A	3	N / A	1, 3	N / A	2	N / A	2	N / A	1, 2, 4	N / A	1	N / A	3	N / A	2	N / A	5	N / A
2	6	3	1	2	N / A	3	N / A	1, 3	N / A	2	N / A	3	N / A	1, 2, 3, 4	N / A	5	N / A	3	N / A	3	N / A	1	N / A
5	1	3	1	2	N / A	2	N / A	1, 3	N / A	1	N / A	3	N / A	1	N / A	1	N / A	4	N / A	3	N / A	6	N / A
3	1	2	1	2	N / A	1	N / A	1, 2, 3	N / A	2	N / A	2	N / A	1	N / A	5	N / A	1	N / A	2, 3	N / A	4	N / A
3	1	3	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A
4	1	2	1	2	N / A	2	N / A	2, 3	N / A	2	N / A	1	N / A	1, 2	N / A	1	N / A	3	N / A	2, 3	N / A	3	N / A

2	1	2	1	2	N / A	3	N / A	1 , 3	N / A	3	N / A	2	N / A	N / A	N / A	1	N / A	3	N / A	4	N / A	1	N / A
2	1	3	1	2	N / A	3	N / A	1 , 3	N / A	2	N / A	2	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A
2	4	1	1	2	N / A	3	N / A	1 , 2 , 3	N / A	3	N / A	3	N / A	4	N / A	1	N / A	3	N / A	N / A	N / A	N / A	N / A
3	1	2	1	2	N / A	1	N / A	2 , 3	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A
2	1	3	2	N / A	2	N / A	3	N / A	1 , 3	N / A	2	N / A	3	N / A	2	N / A	1	N / A	1	N / A	N / A	N / A	N / A
3	1	3	1	2	N / A	2	N / A	1 , 2 , 3	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A
4	1	2	1	1	N / A	2	N / A	1 , 2 , 3	N / A	2	N / A	1	N / A	1	N / A	1	N / A	3	N / A	2 , 3	N / A	1	N / A
2	3	2	2	N / A	2	N / A	3	N / A	1	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A
2	1	3	1	2	N / A	3	N / A	2	N / A	2	N / A	3	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A
2	4	3	1	2	N / A	3	N / A	1 , 3	N / A	2	N / A	4	N / A	1	N / A	1	N / A	3	N / A	2 , 3	N / A	1	N / A
2	1	3	1	1	N / A	3	N / A	1 , 2	N / A	2	N / A	1	N / A	1 , 2	N / A	1	N / A	1	N / A	2 , 3	N / A	1	N / A

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3	1	2	1	2	N / A	2	N / A	2 , 3	N / A	2	N / A	1	N / A	1 , 2 , 4	N / A	1	N / A	3	N / A	1 , 2	N / A	1	N / A
4	1	3	1	1	N / A	3	N / A	1 , 2 , 3	N / A	2	N / A	3	N / A	1 , 5	N / A	1	N / A	3	N / A	1 , 2 , 3	N / A	6	N / A
3	1	2	1	2	N / A	3	N / A	1 , 3	N / A	2	N / A	3	N / A	1	N / A	3	N / A	3	N / A	2 , 3	N / A	1	N / A
2	1	3	1	2	N / A	3	N / A	1 , 3	N / A	1	N / A	3	N / A	4	N / A	1	N / A	3	N / A	4	N / A	1	N / A
3	1	2	1	2	N / A	3	N / A	1 , 2 , 3	N / A	1	N / A	1	N / A	1 , 2 , 4	N / A	3	N / A	3	N / A	2 , 3	N / A	1	N / A
3	1	3	1	1	N / A	3	N / A	1 , 2 , 3	N / A	2	N / A	2	N / A	5	N / A	1	N / A	3	N / A	3	N / A	3	N / A
N / A	N / A	N / A	2	N / A	2	N / A	3	N / A	1 , 3	N / A	2	N / A	1	N / A	1 , 2 , 3 , 4	N / A	1	N / A	3	N / A	4	N / A	1
N / A	N / A	N / A	1	1	N / A	2	N / A	1 , 3	N / A	1	N / A	1	N / A	1	N / A	1	N / A	3	N / A	2 , 3	N / A	1	N / A
N / A	N / A	N / A	1	2	N / A	2	N / A	1 , 2 , 3	N / A	2	N / A	2	N / A	4	N / A	1	N / A	2	N / A	2 , 3	N / A	3	N / A

N / A	N / A	N / A	1	2	N / A	3	N / A	1 , 3	N / A	1	N / A	1	N / A	5	N / A	1	N / A	3	N / A	1 , 2 , 3	N / A	3	N / A
N / A	N / A	N / A	1	2	N / A	3	N / A	1 , 3	N / A	1	N / A	4	N / A	1	N / A	1	N / A	4	N / A	2 , 3	N / A	1	N / A
N / A	N / A	N / A	1	2	N / A	3	N / A	2 , 3	N / A	3	N / A	3	N / A	1	N / A	1	N / A	3	N / A	2 , 3	N / A	1	N / A
4	1	2	1	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A
N / A	N / A	N / A	2	N / A	2	N / A	3	N / A	1 , 3	N / A	1	N / A	1	N / A	2 , 3 , 4 , 5	N / A	1	N / A	3	N / A	2 , 3	N / A	1
N / A	N / A	N / A	1	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A
N / A	N / A	N / A	1	2	N / A	3	N / A	1	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A
N / A	N / A	N / A	1	2	N / A	2	N / A	2 , 3	N / A	2	N / A	3	N / A	1 , 4	N / A	1	N / A	3	N / A	1 , 2 , 3	N / A	1	N / A
N / A	N / A	N / A	1	2	N / A	3	N / A	1 , 3	N / A	1	N / A	3	N / A	1	N / A	5	N / A	3	N / A	4	N / A	5	N / A
N / A	N / A	N / A	1	2	N / A	3	N / A	3	N / A	3	N / A	2	N / A	2	N / A	1	N / A	3	N / A	1	N / A	1	N / A
N / A	N / A	N / A	2	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A
3	1	2	1	2	N / A	3	N / A	1	N / A	1	N / A	3	N / A	1	N / A	1	N / A	3	N / A	3	N / A	1	N / A

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3	3	2	1	1	N	3	N	1	N	3	N	3	N	5	N	1	N	4	N	1	N	6	N
					/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
					A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
3	1	2	1	2	N	2	N	1	N	3	N	3	N	4	N	1	N	3	N	1	N	3	N
					/	/	/	,	/	/	/	/	/	/	/	/	/	/	/	,	/	/	/
					A	A	A	2	A	A	A	A	A	A	A	A	A	A	A	2	A	A	A
								,												,			
								3												3			
3	1	2	1	1	N	2	N	1	N	2	N	3	N	5	N	1	N	4	N	2	N	3	N
					/	/	/	,	/	/	/	/	/	/	/	/	/	/	/	,	/	/	/
					A	A	A	2	A	A	A	A	A	A	A	A	A	A	A	3	A	A	A
								,															
								3															
3	1	3	1	2	N	2	N	1	N	1	N	1	N	2	N	1	N	3	N	1	N	1	N
					/	/	/	,	/	/	/	/	/	,	/	/	/	/	/	,	/	/	/
					A	A	A	2	A	A	A	A	A	3	A	A	A	A	A	2	A	A	A
								,						4						,			
								3						5						3			
4	1	3	1	2	N	2	N	1	N	2	N	2	N	4	N	6	N	4	N	2	N	3	N
					/	/	/	,	/	/	/	/	/	,	/	/	/	/	/	,	/	/	/
					A	A	A	2	A	A	A	A	A	5	A	A	A	A	A	3	A	A	A
								,															
								3															
4	1	1	1	2	N	3	N	1	N	3	N	3	N	1	N	1	N	2	N	3	N	1	N
					/	/	/	,	/	/	/	/	/	,	/	/	/	/	/	/	/	/	/
					A	A	A	2	A	A	A	A	A	5	A	A	A	A	A	A	A	A	A
								,															
								3															
5	1	2	2	N	2	N	3	N	1	N	1	N	2	N	5	N	1	N	4	N	2	N	1
				/	/	/	/	/	,	/	/	/	/	/	/	/	/	/	/	/	,	/	/
				A	A	A	A	A	3	A	A	A	A	A	A	A	A	A	A	A	3	A	A
3	1	1	1	2	N	3	N	1	N	2	N	1	N	2	N	1	N	3	N	2	N	3	N
					/	/	/	,	/	/	/	/	/	/	/	/	/	/	/	,	/	/	/
					A	A	A	3	A	A	A	A	A	A	A	A	A	A	A	3	A	A	A
4	1	3	1	2	N	3	N	1	N	1	N	1	N	1	N	1	N	3	N	1	N	3	N
					/	/	/	,	/	/	/	/	/	,	/	/	/	/	/	,	/	/	/
					A	A	A	2	A	A	A	A	A	3	A	A	A	A	A	2	A	A	A

								3					4						3				
4	2	2	1	2	N / A	2	N / A	2, 3	N / A	3	N / A	3	N / A	1	N / A	5	N / A	3	N / A	1, 2, 3	N / A	6	N / A
4	1	2	1	1	N / A	1	N / A	2, 3	N / A	1	N / A	4	N / A	1, 2, 3, 4, 5	N / A	1	N / A	3	N / A	2, 3	N / A	3	N / A
2	1	3	1	2	N / A	3	N / A	1, 3	N / A	1	N / A	2	N / A	2, 4	N / A	1	N / A	3	N / A	2, 3	N / A	1	N / A
2	1	3	1	2	N / A	3	N / A	1, 3	N / A	3	N / A	3	N / A	1	N / A	1	N / A	1	N / A	2, 3	N / A	4	N / A
3	1	2	1	2	N / A	2	N / A	2, 3	N / A	1	N / A	3	N / A	1, 2	N / A	1	N / A	3	N / A	1, 2, 3	N / A	1	N / A
3	1	2	1	1	N / A	2	N / A	1, 2, 3	N / A	1	N / A	3	N / A	2, 3, 4, 5	N / A	1	N / A	3	N / A	4	N / A	3	N / A
2	1	3	1	2	N / A	3	N / A	1	N / A	1	N / A	3	N / A	1	N / A	6	N / A	3	N / A	2, 3	N / A	1	N / A
3	1	2	1	2	N / A	3	N / A	1, 2, 3	N / A	1	N / A	2	N / A	1	N / A	1	N / A	3	N / A	2	N / A	1	N / A

3	1	2	2	N / A	2	N / A	3	N / A	1	N / A	2	N / A	1	N / A	2	N / A	1	N / A	3	N / A	2	N / A	4
4	4	3	1	2	N / A	3	N / A	3	N / A	1	N / A	3	N / A	1	N / A	1	N / A	3	N / A	3	N / A	6	N / A
2	1	3	1	2	N / A	3	N / A	1	N / A	2	N / A	3	N / A	1	N / A	5	N / A	3	N / A	4	N / A	1	N / A
3	1	2	1	2	N / A	3	N / A	3	N / A	2	N / A	3	N / A	1	N / A	1	N / A	3	N / A	2	N / A	1	N / A
4	1	2	1	2	N / A	2	N / A	2	N / A	2	N / A	1	N / A	1	N / A	1	N / A	3	N / A	4	N / A	1	N / A
4	1	2	1	2	N / A	2	N / A	2	N / A	3	N / A	2	N / A	4	N / A	1	N / A	3	N / A	1	N / A	1	N / A
3	1	3	2	N / A	2	N / A	3	N / A	1	N / A	2	N / A	1	N / A	2	N / A	1	N / A	2	N / A	2	N / A	1
2	1	3	1	2	N / A	3	N / A	1	N / A	1	N / A	3	N / A	1	N / A	1	N / A	3	N / A	1	N / A	6	N / A
3	1	2	1	2	N / A	2	N / A	1	N / A	2	N / A	2	N / A	1	N / A	1	N / A	3	N / A	2	N / A	1	N / A
2	1	2	1	2	N / A	3	N / A	1	N / A	2	N / A	3	N / A	1	N / A	1	N / A	1	N / A	4	N / A	3	N / A
3	4	1	1	2	N / A	2	N / A	1	N / A	1	N / A	3	N / A	1	N / A	1	N / A	3	N / A	1	N / A	6	N / A

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3	1	3	1	2	N / A	3	N / A	1, 3	N / A	1	N / A	3	N / A	1	N / A	1	N / A	3	N / A	2	N / A	1	N / A
2	1	3	1	2	N / A	3	N / A	1, 2, 3	N / A	3	N / A	2	N / A	1, 3, 4, 5	N / A	3	N / A	4	N / A	2, 3	N / A	1	N / A
3	1	3	1	2	N / A	3	N / A	1, 3	N / A	2	N / A	3	N / A	2	N / A	1	N / A	3	N / A	4	N / A	1	N / A
3	1	2	1	1	N / A	1	N / A	2, 3	N / A	1	N / A	1	N / A	1	N / A	1	N / A	3	N / A	2, 3	N / A	3	N / A
2	1	1	1	2	N / A	2	N / A	2	N / A	3	N / A	2	N / A	1, 4	N / A	1	N / A	3	N / A	3	N / A	1	N / A
4	1	3	1	2	N / A	3	N / A	1, 3	N / A	2	N / A	1	N / A	1, 2, 3, 4, 5	N / A	1	N / A	4	N / A	2, 3	N / A	4	N / A
2	1	2	1	2	N / A	3	N / A	1, 2, 3	N / A	2	N / A	3	N / A	1, 2, 4	N / A	1	N / A	3	N / A	3	N / A	1	N / A
3	1	2	1	1	N / A	2	N / A	3	N / A	2	N / A	1	N / A	1	N / A	1	N / A	3	N / A	2	N / A	3	N / A
3	1	2	1	1	N / A	2	N / A	1	N / A	2	N / A	3	N / A	1, 3, 4	N / A	1	N / A	3	N / A	3	N / A	1	N / A

2	2	3	1	1	N / A	3	N / A	1	N / A	1	N / A	2	N / A	1	N / A	1	N / A	3	N / A	2	N / A	5	N / A
2	3	2	1	2	N / A	1	N / A	1	N / A	3	N / A	3	N / A	1	N / A	1	N / A	3	N / A	2	N / A	6	N / A
3	1	2	1	2	N / A	3	N / A	1	N / A	3	N / A	2	N / A	1	N / A	1	N / A	2	N / A	4	N / A	1	N / A
3	1	3	1	2	N / A	3	N / A	1	N / A	2	N / A	2	N / A	1	N / A	1	N / A	4	N / A	2	N / A	3	N / A
3	1	3	1	2	N / A	3	N / A	3	N / A	2	N / A	2	N / A	4	N / A	1	N / A	3	N / A	2	N / A	1	N / A
3	1	3	1	2	N / A	3	N / A	1	N / A	1	N / A	3	N / A	1	N / A	1	N / A	3	N / A	2	N / A	3	N / A
3	1	2	1	2	N / A	3	N / A	2	N / A	2	N / A	3	N / A	1	N / A	5	N / A	3	N / A	3	N / A	1	N / A
3	2	2	1	2	N / A	3	N / A	1	N / A	3	N / A	3	N / A	4	N / A	5	N / A	3	N / A	2	N / A	1	N / A
2	4	2	1	2	N / A	3	N / A	1	N / A	2	N / A	2	N / A	5	N / A	1	N / A	3	N / A	3	N / A	1	N / A
2	1	3	1	2	N / A	3	N / A	1	N / A	3	N / A	2	N / A	3	N / A	1	N / A	3	N / A	2	N / A	6	N / A
4	1	3	1	2	N / A	3	N / A	1	N / A	1	N / A	3	N / A	1	N / A	1	N / A	3	N / A	4	N / A	1	N / A

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3	1	3	1	2	N / A	3	N / A	1, 3	N / A	1	N / A	2	N / A	1, 2, 4	N / A	1	N / A	1	N / A	3	N / A	1	N / A	
3	1	2	2	N / A	1	N / A	3	N / A	1, 3	N / A	3	N / A	1	N / A	1, 2, 3, 4	N / A	1	N / A	3	N / A	1, 2, 3	N / A	6	
2	2	3	2	N / A	2	N / A	3	N / A	1, 3	N / A	1	N / A	1	N / A	2, 4	N / A	1	N / A	4	N / A	4	N / A	6	
3	1	3	1	2	N / A	3	N / A	1, 3	N / A	2	N / A	1	N / A	1	N / A	1	N / A	3	N / A	1, 2, 3	N / A	6	N / A	
2	1	2	1	2	N / A	3	N / A	1, 2, 3	N / A	1	N / A	3	N / A	1	N / A	1	N / A	3	N / A	3	N / A	1	N / A	
4	1	2	1	2	N / A	3	N / A	1, 3	N / A	2	N / A	3	N / A	1, 5	N / A	1	N / A	1	N / A	2, 3	N / A	2	N / A	
2	1	3	1	2	N / A	3	N / A	1, 2, 3	N / A	2	N / A	2	N / A	1	N / A	5	N / A	3	N / A	3	N / A	1	N / A	
5	2	3	1	2	N / A	3	N / A	1, 3	N / A	1	N / A	3	N / A	1, 2	N / A	1	N / A	3	N / A	2	N / A	3	N / A	
2	1	3	1	2	N / A	3	N / A	1, 2	N / A	2	N / A	4	N / A	1, 3, 4	N / A	1	N / A	3	N / A	1, 2, 3	N / A	1	N / A	

2	1	2	2	N / A	2	N / A	3	N / A	1	N / A	2	N / A	1	N / A	2	N / A	1	N / A	3	N / A	1	N / A	2
3	1	3	2	N / A	2	N / A	3	N / A	1, 3	N / A	2	N / A	1	N / A	1, 2, 3, 4	N / A	1	N / A	3	N / A	2, 3	N / A	4
2	1	2	1	2	N / A	3	N / A	1, 3	N / A	2	N / A	3	N / A	2, 3, 4	N / A	1	N / A	3	N / A	4	N / A	5	N / A
3	1	2	1	2	N / A	3	N / A	3	N / A	1	N / A	1	N / A	1	N / A	1	N / A	3	N / A	2, 3	N / A	1	N / A
3	1	3	2	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A
2	1	2	1	2	N / A	3	N / A	3	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A
3	1	2	2	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A
3	1	2	1	2	N / A	3	N / A	1, 3	N / A	2	N / A	3	N / A	1, 5	N / A	1	N / A	3	N / A	2, 3	N / A	4	N / A
2	1	3	1	2	N / A	3	N / A	3	N / A	3	N / A	2	N / A	1	N / A	1	N / A	3	N / A	4	N / A	1	N / A
2	1	3	2	N / A	2	N / A	3	N / A	1, 2, 3	N / A	3	N / A	2	N / A	1, 2, 3	N / A	1	N / A	1	N / A	4	N / A	4
2	1	2	2	N / A	2	N / A	3	N / A	1, 2, 3	N / A	2	N / A	2	N / A	2	N / A	1	N / A	3	N / A	2	N / A	1

				A		A		A	2	A		A		A	4	A		A		A		A	
2	4	1	1	2	N / A	3	N / A	1, 3	N / A	3	N / A	3	N / A	1, 2, 4	N / A	5	N / A	3	N / A	2	N / A	4	N / A
2	1	3	2	N / A	1	N / A	3	N / A	1, 3	N / A	1	N / A	1	N / A	1, 2, 3	N / A	1	N / A	3	N / A	2, 3	N / A	3
3	1	2	1	2	N / A	2	N / A	1, 2, 3	N / A	1	N / A	3	N / A	1, 4	N / A	5	N / A	4	N / A	2, 3	N / A	5	N / A
3	1	2	1	2	N / A	3	N / A	1, 3	N / A	2	N / A	2	N / A	1, 4	N / A	1	N / A	1	N / A	2, 3	N / A	3	N / A
3	1	3	1	1	N / A	2	N / A	1, 2, 3	N / A	2	N / A	1	N / A	1, 4, 5	N / A	1	N / A	3	N / A	2, 3	N / A	3	N / A
2	1	3	1	2	N / A	3	N / A	1, 3	N / A	2	N / A	3	N / A	1	N / A	1	N / A	3	N / A	2, 3	N / A	4	N / A
2	1	3	1	2	N / A	3	N / A	1, 3	N / A	2	N / A	2	N / A	3	N / A	1	N / A	4	N / A	3	N / A	4	N / A

Q1: What is your highest level of education?	1: less than a High School degree, 2: High School diploma/ GED, 3: Bachelors/ Associates, 4: Masters, 5: Ph.D./ Professional degree
Q2: How would you best classify your "race" or ancestry?	1: White, 2: Asian, 3: Black, 4: Other, 5: American Indian/ Alaska Native, 6: Native Hawaiian/ Pacific Islander
Q3: Which statement best describes your living situation?	1: I sometimes have problems meeting basic needs, 2: I can usually meet basic needs, but have little money left over for savings or extras, 3: I am easily able to meet all basic

	needs and can save or invest in other activities
Q4: In the absence of medical necessity would you most prefer...	1: Vaginal delivery, 2: Cesarean section
Q5: How insistent are you that you want to delivery vaginally?	1: I am extremely insistent (this is the only way I want to give birth), 2: I would like to deliver by cesarean section but am open to non-surgical birthing options
Q6: How insistent are you that you want to deliver by cesarean section?	1: I am extremely insistent (this is the only way I want to give birth), 2: I would like to deliver by cesarean section but am open to non-surgical birthing options
Q7: Where would you most prefer to give birth? (Vaginal delivery)	1: Home, 2: Birth Center, 3: Hospital
Q8: Where would you most prefer to give birth? (Cesarean section)	1: Home, 2: Birth Center, 3: Hospital
Q9: Who would you like to attend the delivery? (Vaginal delivery)	1: Doctor/Nurse, 2: Midwife/Doula (trained emotional support), 3: Friends/Family/Partner(s)
Q10: Who would you like to attend the delivery? (Cesarean section)	1: Doctor/Nurse, 2: Midwife/Doula (trained emotional support), 3: Friends/Family/Partner(s)
Q11: Do you have any fear/anxiety concerning birth? (Vaginal delivery)	1: Low-no fear of birth, 2: Moderate fear of birth, 3: Extreme fear of birth
Q12: Do you have any fear/anxiety concerning birth? (Cesarean section)	1: Low-no fear of birth, 2: Moderate fear of birth, 3: Extreme fear of birth
Q13: Does your fear (or lack thereof) influence your preference for mode of birth? (Vaginal delivery)	1: Yes it makes me prefer a vaginal delivery, 2: Yes it makes me question my preference for a vaginal delivery, 3: No my childbirth preference is unrelated to my fear of birth, 4: I have no fear or anxiety that would influence my childbirth preference
Q14: Does your fear (or lack thereof) influence your preference for mode of birth? (Cesarean section)	1: Yes it makes me prefer a vaginal delivery, 2: Yes it makes me question my preference for a vaginal delivery, 3: No my childbirth preference is unrelated to my fear of birth, 4: I have no fear or anxiety that would influence my childbirth preference
Q15: What makes you prefer a vaginal delivery over a cesarean section?	1: Vaginal delivery seems the most "natural" or "normal," 2: Vaginal delivery seems less painful or risky than a cesarean section, 3: Vaginal delivery is less expensive than cesarean section, 4: Vaginal delivery has a

	shorter recovery time, 5: Other
Q16: What makes you prefer a cesarean section over a vaginal delivery?	1: Cesarean section seems the most "advanced" or "efficient," 2: Cesarean section seems less painful or risky than a vaginal delivery, 3: Cesarean section can be scheduled and planned ahead (convenience; choice of birth date), 4: Cesarean section is thought to "keep the body intact," 5: Other
Q17: Who has the most influence on your birth preference and decisions? (Vaginal delivery)	1: Myself, 2: My partner, 3: My family, 4: My friends, 5: My doctor, 6: Other
Q18: Who has the most influence on your birth preference and decisions? (Cesarean section)	1: Myself, 2: My partner, 3: My family, 4: My friends, 5: My doctor, 6: Other
Q19: Do you believe that a vaginal delivery is...	1: Safest for the mother, 2: Safest for the infant, 3: Safest for both, 4: Safest for neither
Q20: Do you believe that a cesarean section is...	1: Safest for the mother, 2: Safest for the infant, 3: Safest for both, 4: Safest for neither
Q21: Have you ever witnessed a birth? Which of the following have you seen? (Vaginal delivery)	1: A live vaginal delivery/ cesarean section, 2: A video of a vaginal delivery/ cesarean section, 3: Pictures/ illustrations of a vaginal delivery/cesarean section, 4: None of the above (I have never seen a birth)
Q22: Have you ever witnessed a birth? Which of the following have you seen? (Cesarean section)	1: A live vaginal delivery/ cesarean section, 2: A video of a vaginal delivery/ cesarean section, 3: Pictures/ illustrations of a vaginal delivery/cesarean section, 4: None of the above (I have never seen a birth)
Q23: Where have you obtained the majority of your information on birth? (Vaginal delivery)	1: Family and friends who have given birth, 2: Family and friends who have not given birth, 3: Books and articles on childbirth, 4: Documentaries on childbirth, 5: Movie and TV portrayals of childbirth, 6: A doctor or another medical professional
Q24: Where have you obtained the majority of your information on birth? (Cesarean section)	1: Family and friends who have given birth, 2: Family and friends who have not given birth, 3: Books and articles on childbirth, 4: Documentaries on childbirth, 5: Movie and TV portrayals of childbirth, 6: A doctor or another medical professional