

Medical and Moral Issues of Modern Pregnancy: Abortion,
Selective Reduction, and Teenage Pregnancy

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Abstract:

Abortion is a tough subject that many people have opinions about, but are not fully educated on. It is one that requires much further study to glean an understanding of the complex topic. One major component that falls under the topic of abortion is that of teenage pregnancy and subsequent choice of abortion. In order for teenage pregnancy rates to decrease, sex education must be increased in schools. This can be done by modelling other countries with low rates of teenage pregnancy. Certainly learning safe sex practices will help reduce the teenage pregnancy rates, especially if taught correctly. Another issue with similar moral implications is that of selective reduction, a procedure done when too many embryos implant into a woman's uterus. Due to increases in in vitro fertilization and use of fertility drugs to become pregnant, rates of multiple pregnancies have increased. Carrying multiples has its own set of problems, including babies born prematurely and the defects that stem from being delivered too early. Having a set of guidelines on how many embryos to transfer and how to prescribe fertility drugs safely are methods that can be used to reduce rates of multiples. Utilizing all of these ideas, rates of abortion and selective reduction will hopefully see a decrease in frequency.

Introduction:

The political stances of pro-life and pro-choice are weighted ones that cause much discontent among people with different views. The purpose of this paper is to inform about the practice of abortion, as well as addressing both views around this tough topic. There has been much talk about these procedures, but many people are not well-informed when marking their positions politically and socially. This paper will explore the claims of Planned Parenthood and look at its funding and practices. It will also examine the rates of teenage abortion and pregnancy and discuss what can be done to lower them. Another issue that falls into this category is that of selective reduction, which will be discussed in this paper, as well as ways to reduce the instance of multiple births. This paper will also go through the extensive moral and ethical dilemmas surrounding the issue of abortion and selective reduction, as well as exploring the specific issues among teenagers surrounding these matters.

There are many factors to take into consideration when making these decisions, such as the number of weeks gestation of the fetus and the mental and physical health of the mother. Also, more information needs to be in place in high schools concerning sex education, so that the frequency of abortion will be reduced.

Abortion:

Abortion can be divided into several categories. First, there is the chemical abortion. This is given in a pill form, and is used in early pregnancies up to ten weeks gestation. However, the further along in the pregnancy this is done, the higher level of failure it can

have. At ten weeks, a chemical abortion has a 10% chance of not being successful. In this procedure, the woman is given a pill at the clinic, and a pill to take the next morning which will break down the lining of her uterus and empty out its contents, including the fetus. The woman can feel intense pain for weeks, and in rare cases can require hospitalization from excessive bleeding. The next type of abortion is performed from ten weeks gestation to about 24 weeks. This abortion is performed via insertion of a suctioning device to remove the fetus from the womb. The fetus has been shown to fight the suction, and the doctor may have to insert a tool to crush the skull and take it out in pieces if the fetus is too large. After 24 weeks, the procedure takes three days. On the first day, the fetus is injected with digoxin to stop its heart, the second day the cervix is enlarged, and the third day, labor is induced for delivery of a dead fetus (15).

There is another topic that falls under the category of abortion, selective reduction. This procedure is done when too many fetuses implant into a woman's uterus, so one or more is removed to give the others a better chance of survival. This is done by injecting potassium chloride to stop the fetus' heart. This paper will go through the medical research on the topic and discuss the different views surrounding the issue (13).

The corporation known as Planned Parenthood set out to provide affordable treatments to women for their reproductive needs. Their stated goal is "The mission of Planned Parenthood is to provide comprehensive reproductive and complementary health care services in settings which preserve and protect the essential privacy and rights of each individual, to advocate public policies which guarantee these rights and ensure access to such services, to provide educational programs which enhance understanding of individual and

societal implications of human sexuality, and to promote research and the advancement of technology in reproductive health care and encourage understanding of their inherent bioethical, behavioral, and social implications.” However, is the corporation really there only to help women through reproductive needs, as they claim to be? Taking a look at Planned Parenthood statistics, this does appear to be true. In fact, they claim that only 3% of all services provided are abortions. However, according to The Hill website, “Planned Parenthood’s claim that abortions make up just 3% of its services is also a gimmick. That number is actually closer to 12%, but strategically skewed by unbundling family planning services so that each patient shows anywhere from five to 20 “visits” per appointment (i.e., 12 packs of birth control equals 12 visits) and doing the opposite with abortion visits, bundling them together so that each appointment equals one visit. The resulting difference between family planning and abortion “visits” is striking,” (Johnson, 2011). This model of business makes sense, as abortions make the most money out of all the procedures done at Planned Parenthood. The mean cost of a medication abortion is \$535, but it ranges from \$75 to \$1,633 or higher, which can be done between 5 to 10 weeks gestation. The cost of an aspiration abortion is between \$435 to \$955, which is performed for women 5 to 12 weeks along. A dilation and evacuation procedure costs between \$500 to \$3,000 or more and is used from 9 to 20 weeks. A late term abortion, from 16 to 24 weeks gestation, costs between \$8,000 to \$15,000 or more, and is not performed by many doctors (9). Planned Parenthood funding is 38% private donations, 34% government funding or reimbursements, 22% non-government health services revenue, and 6% other. The government section of funding totalled \$564 million in 2017. It is split into \$50-\$60 million from Title X grants, the nation’s

family planning program. The rest comes from government reimbursement programs, such as Medicaid (20).

Contraception should be Planned Parenthood's and other clinic's primary focus. If we can decrease the number of unwanted pregnancies, then abortion would not necessarily be such a hot button topic in the world. Teenagers need to be taught the ramifications of their actions, not just being taught that abstinence is the only option.

Teenage Pregnancy:

So, how can we decrease abortion rates, specifically in teenagers? Logically, if rates of unwanted pregnancies went down, then rates of abortion would follow that same trend. The best way to do so is to increase sexual education in schools.

Public and private schools should increase the extent of their sex education. In some schools, the subject is completely taboo, and therefore, teenagers erroneously believe that they can't get pregnant their first time having sex. Even in schools where they do talk about the issue; it is clearly not stressed enough, as the rates of teenage pregnancy are quite high. The CDC reports, "In 2017, a total of 194,377 babies were born to women aged 15 to 19 years, for a birth rate of 18.8 per 1,000 women in this age group. This is another record low for U.S. teens and a drop of 7% from 2016. Birth rates fell 10% for women aged 15 to 17 years and 6% for women aged 18 to 19 years." Rates are lower than they were in previous years, but the reason for this could be a number of things: higher rates of abstinence and birth control, or perhaps, a rise in abortion. Despite the decrease in numbers, the U.S. teenage pregnancy rate is still much higher than in other western industrialized nations (1).

As stated by the Guttmacher Institute, “Although teen pregnancy rates have declined considerably over the past few decades in the United States and in most of the other 20 countries with complete statistics, the teen pregnancy rate is still highest in the United States (57 per 1,000 15–19-year-olds), followed by New Zealand (51) and England and Wales (47). The lowest rate was in Switzerland (8 per 1,000), followed by the Netherlands (14), Slovenia (14) and Singapore (14),” (Guttmacher Institute, 2016).

In addition, pregnancy rates are highest in the Southern states in the U.S. One can only intuit from this that availability of abortion causes the disparity in numbers between states. In fact, could this be the reason teen birth rates have gone down? Abortions are readily available in many states, which may be why the numbers of teen births have gone down- live births, not pregnancies.

The best way to solve the high number of teenage pregnancies in the United States is by increasing sexual education in middle and high schools. Many schools believe that students should be taught that abstinence is the only option. However, teenagers will still continue to have sex, as the teenage mind is bound to go against the rules at some point in time. And, if not armed with information about contraceptives, they will be headed for disaster. An excellent proof for this theory is the country of Switzerland.

The Guttmacher Institute states, “among countries with reliable evidence, the researchers found exceptionally low teen pregnancy, birth and abortion rates in Switzerland (8, 2 and 5 per 1,000 15–19-year-olds, respectively), where long-established sex education programs, free family planning services and low-cost emergency contraception are widely available, and sexually active teens are expected to use contraceptives. By contrast, the

United States' rates of teen pregnancy, birth and abortion (57, 34 and 15 per 1,000 15 to 19-year-olds, respectively) were among the highest. The authors note that U.S. teens face low societal acceptance of teen sexuality, inconsistent provision of sex education, and socioeconomic inequalities that underlie higher teen pregnancy rates among the most disadvantaged groups," (Guttmacher Institute, 2016).

This information is shown clearly in Figure 1, where it is conveyed that the rates of abortion in teenagers in the United States is 15 out of every 1,000 women, whereas in Switzerland the number is 5 out of 1,000. Teenage births in the United States come to 34 out of 1,000 women, and in Switzerland the number is much less, at 2 in 1,000. It is apparent from the information shown in this graph that something needs to be done to bridge this gap between the United States and Switzerland. The United States does not have the available services that Switzerland has. Clearly Switzerland is doing something right; their levels are much lower than in the United States. We need to emulate the practices done there by establishing better sex education practices if we want to try and lower the high levels of teenage pregnancy and abortion in the United States.

If the United States could follow in Switzerland's footsteps, then it appears that the levels of teenage pregnancy may drop drastically. There are other reasons that could lead to a lower teenage pregnancy rate, however, if schools could provide better sex education, then the problem could be nipped in the bud, so to say.

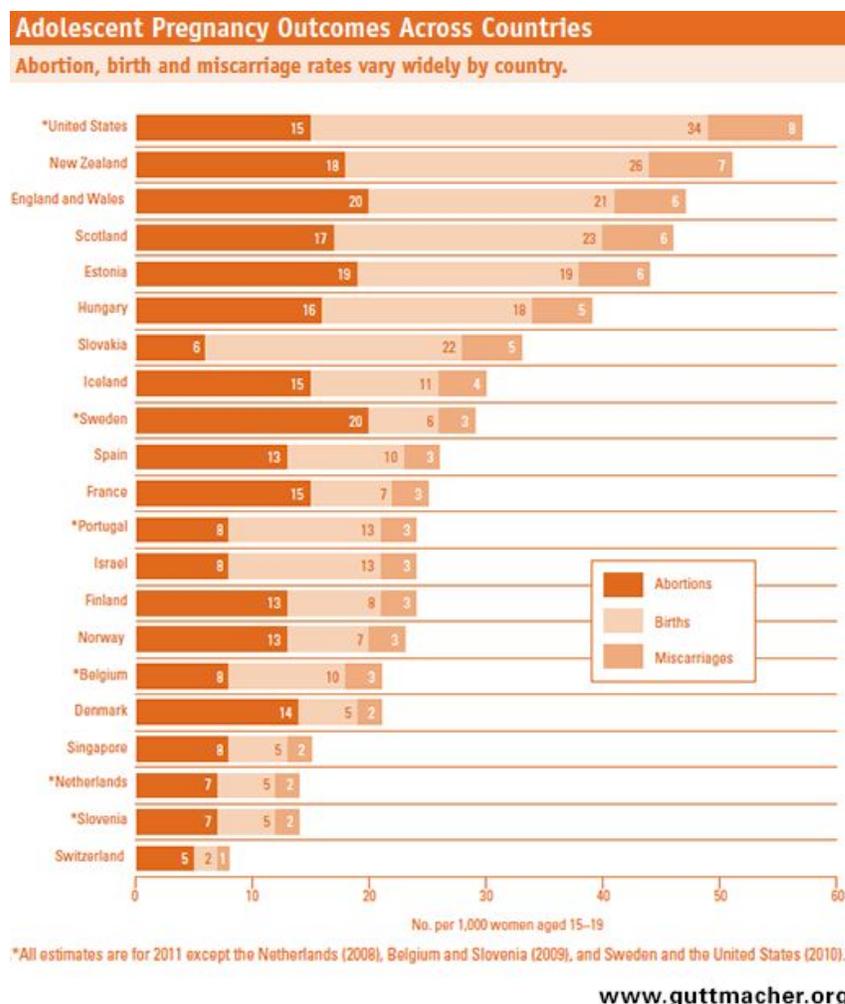


Figure 1: Rates of teenage pregnancies across different countries (Guttmacher Institute, 2011)

Whilst considering all of these factors, a major question remains: what can specifically be done to help lower the extremely high rate of teenage pregnancy in America?

According to the National Conference of State Legislatures, “a 2011 Centers for Disease Control and Prevention (CDC) survey indicates that more than 47 percent of all high school students say they have had sex, and 15 percent of high school students have had sex with four or more partners during their lifetime. Among students who had sex in the three months prior to the survey, 60 percent reported condom use and 23 percent reported birth

control pill use during their last sexual encounter,” (National Conference of State Legislatures, 2018). If 47%, nearly half of high school students are having sex, it is clear that abstinence is not what is being practiced among many teenagers. When analyzing these statistics, it becomes clear that sex education needs to contain more than just the abstinence only point of view. Teenagers should be taught about contraceptives, as well as STI’s and consensual relationships. The article continues to say, “Sexual activity has consequences. Though the teen birth rate has declined to its lowest levels since data collection began, the United States still has the highest teen birth rate in the industrialized world. Roughly 1 in 4 girls will become pregnant at least once by their 20th birthday,” (National Conference of State Legislatures, 2018). These statistics are staggering. If 25% of girls are becoming pregnant as teenagers, then something drastic needs to be done to combat this. It is estimated that 9.4 billion dollars annually goes to funding teenager childbearing costs. This issue is affecting taxpayers nationwide. It seems advantageous to deal with the problem head on so as not incur these costs at a later date (7).

The next major question can then be posed: what can be done to increase sexual education in schools?

According to the National Center for Biotechnology Information, “Sex education refers to ‘an age-appropriate, culturally relevant approach to teaching about sex and relationships by providing scientifically accurate, realistic, non-judgmental information,’” (Leung, et al., 2019). This definition means that sexual education classes must be taught in a way that provides correct, unbiased information in an inclusive, non-judgemental environment.

There are three forms of sexual education. The first is the abstinence only until marriage approach. This approach is favored by many religious, conservative institutions. This approach “advocate(s) the complete refraining of sex outside of wedlock, including masturbation.” Students are taught that virginity is a virtue and that they should remain pure until marriage. Teachers instill fear and shame into the students to scare them away from sexual relations before marriage. This approach may work for some, but most teenagers are going to try to push boundaries, and it is better for them to have knowledge on safe sex practices when doing so (19).

The next approach is the stress-abstinence approach, which views abstinence not under a moral lens, like the previous approach, but a social lens. Teachers who follow this approach teach that, “Abstinence...does not include other sex-related behaviors such as petting, kissing, mutual masturbation, oral, and anal sex.” This approach believes in abstaining from vaginal sex until marriage in order to fully prevent pregnancy, but still allows room for other sexual activities (19).

The final approach is the comprehensive sex education. This approach refers to “education about all matters relating to sexuality and its expression. Comprehensive sexuality education covers the same topics as sex education but also includes issues such as relationships, attitudes towards sexuality, sexual roles, gender relations and the social pressures to be sexually active, and it provides information about sexual and reproductive health services. It may also include training in communication and decision-making skills,” (Leung, et al., 2019). This approach encompasses all aspects of sexuality, and teaches teenagers to make good decisions regarding their sexual health. Since adolescents will

generally push boundaries in life, this approach seems to be the best fit for children of this age, in order to best educate them on contraceptives, STIs, and safe sex practices (19).

During the HIV crisis in America, officials realized that it was past time for a system to be put in place regarding sex education for teenagers. Therefore, in the late 1990s, the federal government decided to implement the abstinence only until marriage approach. In fact, 49 states began implementing this program in schools across the country (19).

Over the next decade, more and more research showed that this approach was not effective in all circumstances, and did not reduce the rate of teenagers having premarital sex. President Obama sought to replace this system with a better one- “that ‘normalizes teen sex.’ This approach is based on the assumption that it will not be possible to dissuade a certain proportion of the adolescent population from sexual activity. Therefore, the best approach is to teach and promote the use of contraception which may lower the rate of unwanted pregnancy and STDs. Simultaneously, for youths that have yet to become sexually active, continued abstinence is still promoted,” (Leung, et al., 2019). This program set out to span all different types of teenagers, teaching the sexually active ones safe sex practices, while maintaining that abstinence can still be a good option for those who want to wait. However, President Trump has been trying to take the country back to the abstinence only approach by providing more funding for those programs that promote this type of approach to teenage sex education (19).

Sex education is a state governed policy, and each state decides for themselves what policies and programs to uphold. Although the comprehensive sex education approach is becoming popular, there are still many states that prefer the abstinence only approach, due to

conservative religious beliefs. Only 24 states have mandated that public schools must teach sex education to students. Even so, there is much variation across states on what exactly is being taught in these courses (19).

The Centers for Disease Control released 16 topics which should be covered during sexual education courses. “(1) How to create and sustain healthy and respectful relationships; (2) Influences of family, peers, media, technology and other factors on sexual risk behavior; (3) Benefits of being sexually abstinent; (4) Efficacy of condoms; (5) Importance of using condoms consistently and correctly; (6) Importance of using a condom at the same time as another form of contraception to prevent both STDs and pregnancy; (7) How to obtain condoms; (8) How to correctly use a condom; (9) Communication and negotiation skills; (10) Goal-setting and decision-making skills; (11) How HIV and other STDs are transmitted; (12) Health consequences of HIV, other STDs and pregnancy; (13) Influencing and supporting others to avoid or reduce sexual risk behaviors; (14) Importance of limiting the number of sexual partners; (15) How to access valid and reliable information, products and services related to HIV, STDs, and pregnancy; and (16) Preventive care that is necessary to maintain reproductive and sexual health,” (Leung, et al., 2019). However, it was found that only half of high schools and one-fifth of middle schools across the United States cover each of these topics. This is clearly a nationwide crisis that needs to be addressed on how to better educate our students on the topic of sexual health. If this can be pulled off, the rates of teenage pregnancy, and subsequently, abortions will see a drastic downward trend (19).

Another issue arises when schools rely on under trained teachers. Students will not receive the best education possible if the teachers themselves are incapable of teaching correctly. Up to 80% of teachers say they do not feel confident teaching sex education. Half of the teachers in this census said that they attributed this barrier in teaching to lack of training and lack of time to develop the program. Only 9% of teachers found the resources provided to them to be useful. One in four teachers believe that the program does not prepare students for the future. Clearly, there is still a need for improvement in these programs (19).

However, if a teenager does get pregnant, there are a multitude of different resources for her to utilize. Recently, the Family First Prevention Services Act was passed. This law helps to keep families together to avoid too many children being placed into foster care. The law provides more child welfare to be placed towards families and allots funds towards mental health care for families (22).

Additionally, there are other laws that make it easier to parent and still finish high school. The school must treat childbirth as an excused absence. Many counties have child care subsidies available for teenage parents. Also, low income teenage parents might be eligible for food stamps and like under the Temporary Assistance for Needy Families. The Healthy Teen Network is a great support system for teenagers and its goals are listed below. This network has different resources, helping pregnant teenagers communicate with their parents, find out all of their options, and more (22).

The goals of this network are set out in the figure below. They have many goals to help teenage parents in reducing STD's, parenting, and nurturing their children. This is a great network for anyone struggling and can truly make a difference in teenage lives, who

never otherwise would have been able to properly care for their child. Seeing programs like these exist pave way for the hope that all children can be raised to reach their fullest potential, and to be safe and happy. An example of the types of goals these programs have is detailed in the figure below.



Figure 2: The goals of the Healthy Teen Network (Healthy Teen Network, 2020)

Selective Reduction:

The choice of aborting a fetus is not always put upon teenagers, but also adults. It can be due to an unplanned pregnancy later in life, or having to make a decision on a selective reduction procedure. The process known as selective reduction is one in which the mother has too many embryos implant in her uterus, so she undergoes a procedure to remove one or many of them, to give the other embryos a better chance at life. Carrying higher order

multiples can be detrimental to both the babies and the mother. However, the morality of selective reduction is split among different sides.

Selective reduction was developed in the 1980's, when certain doctors wanted to decrease the risks of carrying multiple fetuses. In the beginning procedures, needles were placed transabdominally and moved into the fetal thorax. Generally, potassium chloride was injected, but there were also instances of mechanical disruption of the fetus, air embolization, and electrocautery used. The scientific community then grappled with the question- at what number of fetuses should selective reduction be offered? The answer was somewhere between triplets and quadruplets. Studies found that reducing triplets to twins gave the fetuses a better chance at survival, as well as higher birth weights. Using a late first trimester procedure to reduce triplets or quadruplets to twins put the fetuses at the same advantage if they had started off in a twin pregnancy (13).

A highly debated ethical point that comes up in the discussion of selective reduction is how to decide which fetuses are removed and which are allowed to continue to develop. The first criteria doctors look at is to check for fetal abnormalities, such as an extra chromosome. The second is to look at the fetuses and see if each is developing at the correct pace. If all fetuses are in similar condition, then the parents may be consulted on which gender they prefer. Nowadays, the preferences are equally split between males and females, although historically, males were the preferred gender. This point is highly debatable, because ethically, it seems very wrong to be able to choose the gender of your child. Due to high level technological medical interventions, people can even choose to implant a certain gendered embryo if using assistive reproductive technologies to conceive (13).

However, an even bigger ethical concern surrounding selective reduction is, how can you choose one life over the other? The medical team assigned to the women is literally choosing which fetus to remove, and which to let grow. Sometimes, a fetus has genetic issues and is chosen to be reduced, however, all fetuses could be normal, and then doctors are choosing based on almost arbitrary numbers, like size.

Many women in the position to reduce fetuses choose to do so, as it gives the other fetuses a better chance at a healthy outcome, however, many women refuse this option. Giving birth to multiples can be very dangerous for both mother and babies.

The biggest risk is due to preterm birth concerns. More than 60% of twins and nearly all higher order multiples are born early- before 37 weeks gestation. They will come out with underdeveloped organs and will need help breathing, maintaining temperature, and fighting infection. These babies will generally stay in the Neonatal Intensive Care Unit (NICU) until close to their due date (16).

Women carrying multiple fetuses are two to five times more likely to develop high blood pressure during pregnancy. This increases the chance of placental disruption early on, as well as the deadly condition of eclampsia, if not treated early. Anemia is also more common in multiple pregnancies (16).

Multiples also have higher risks of birth defects, such as cerebral palsy, stomach, and heart problems. The “vanishing twin” also may occur in a multiple pregnancy, where one fetus suddenly miscarries. This usually happens in the first trimester of pregnancy (16).

Identical twins bear the risk of twin-to-twin transfusion syndrome, which occurs in 15-20% of twins who share a placenta. This condition causes too much blood to be routed to one twin, and too little to the other. This can be deadly for both fetuses (16).

The risk of having a cesarean section increases with multiple pregnancies, and any surgery has risks. Mothers can also suffer with postpartum hemorrhage, because the uterus is too distended and does not go back to its original position. She can bleed to death from this condition, and may require a hysterectomy to remove her uterus (16).

Clearly, there are a multitude of risks associated with carrying and giving birth to a set of multiples. It is therefore prudent upon the scientific community to find ways to help mothers and babies survive a multiple pregnancy, but also to diminish the rate of multiples occurring in the first place. Otherwise, it may cause a mother to need to make the terrible choice of terminating one of her fetuses or carrying all of the fetuses and risking a bad outcome for one or even all of them.

The trend of increasing amounts of multiples born requires exploration. From 1995 to 1996, the rate of triplets and higher order multiples rose by 19%. The rate has gone up 340% since 1980. These numbers are staggering. The figure below portrays the number of triplet and higher-order multiple births in the United States from 1980-2018. Clearly the number of births has grown until plateauing between 1997-2005. The number is slowly decreasing as more and more prevention tools are being put into place to prevent multiple births from taking place so often, as is evidenced by decreasing numbers shown in Figure 3.

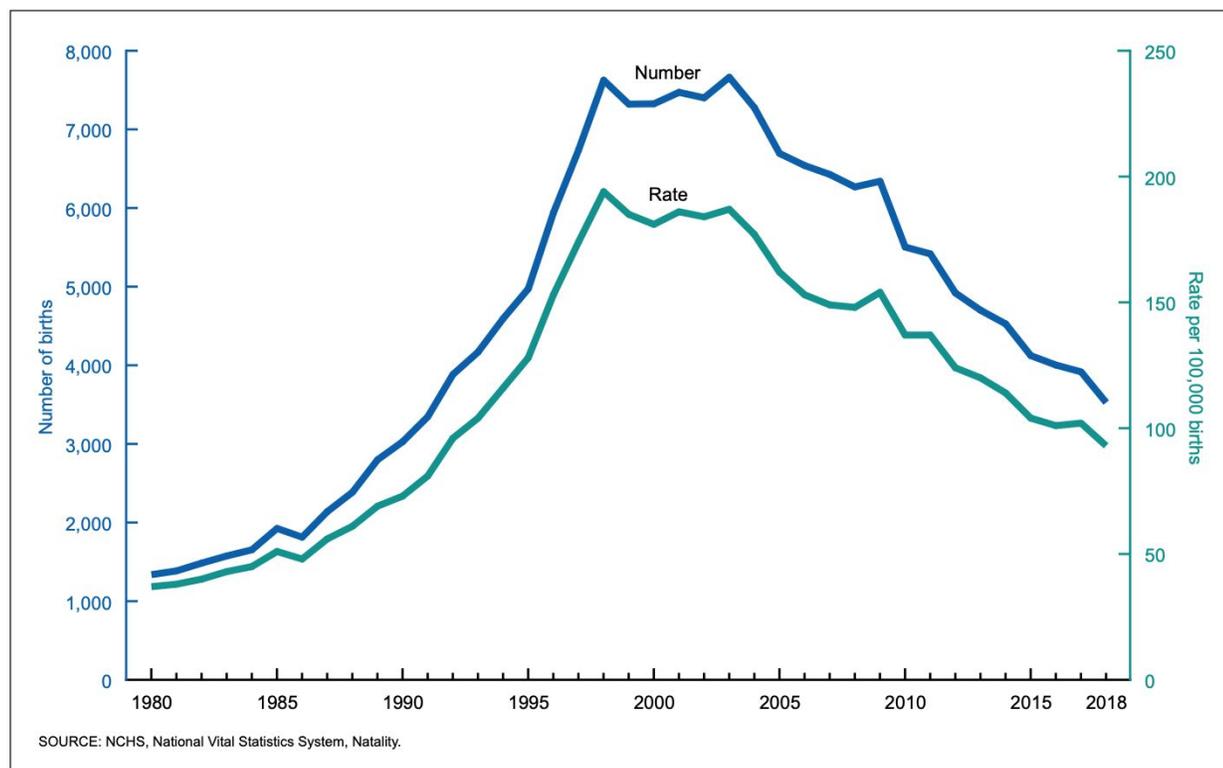


Figure 3: Number and rate of triplet and higher-order multiple births in the U.S. from 1980-2018 (National Vital Statistics Reports, 2019)

So, what are the reasons for the increase in multiple births? The answer is two-fold. First, with the advent of technology, specifically in vitro fertilization (IVF), more couples are turning to medical intervention to help them conceive. An IVF procedure takes the egg from a woman and the sperm from a man, and fertilizes it into a zygote, which later becomes an embryo, in a laboratory. The embryos are grown for a few days, and tested for abnormalities and ability to thrive. Then, these embryos are implanted into the woman's uterus. However, doctors prefer to implant more than one embryo, to increase the chances of at least one implanting. Implantation of higher order multiples is not the goal for IVF, and Ken Faber of the University of Colorado even wrote, "It is my belief that such pregnancies are a failure

rather than a success of the IVF enterprise,” (Faber, 2017). The second reason multiples are on the rise, is due to fertility drugs being prescribed so often. More than 1.3 million fertility drug prescriptions are filled annually. 58% of multiples are from mothers who used fertility drugs, and another 22% are from women who underwent IVF procedures. In fact, 30% of women who receive assistance conceiving have multiples. Clomiphene citrate is one drug used to help women conceive. It stimulates ovulation by causing the pituitary gland to release more FSH and LH, which in turn help to stimulate the growth of an ovarian follicle containing an egg. Gonadotropins are used to help stimulate eggs to be released at the time of ovulation. When taking medication orally, the risk of having multiples is 10%. When administering injections, that statistic can be raised 30%. These medications can sometimes lend themselves to releasing more than one egg per ovulation cycle, which can lead to a multiple pregnancy (11).

Currently, it seems as if doctors are prescribing these medications, and if a woman conceives too many fetuses, they offer selective reduction. There are not too many steps in place to help prevent multiple pregnancies from occurring in the first place. Many women opt out of selective reduction procedures due to religious or ethical issues with it. Psychologically, women who undergo these procedures will generally feel depressed. A study found that one-third of women who underwent this procedure still felt depressed one year afterwards (11).

The complications from a multiple birth are not only physical, but emotional and financial hardships can come about as a result too. Physically, multiples are seven times as likely to die within the first year of life than singletons. The dangers of being born

prematurely are many and can be deadly. However, there are other results of a multiple pregnancy that can be trying as well. Economically, raising so many children can be a great burden. Not only in everyday life, but also during the NICU stay, the babies rack up medical costs. A three month hospital stay for a premature baby can cost around \$500,000. Even if insurance picks up most of the cost, there will still be a financial burden on the parents. Multiples also may have a difficult time socializing in school, as they have built in playmates already. Parents of multiples are more likely to be depressed and anxious, as well as exhausted from looking after all of their children. A study also showed that children born at a low birth weight experience high levels of behavioral problems and cognitive function issues. The table below details the average weight for singletons, twins, triplets, and quadruplets. Birth rates decrease as fetuses increase, so multiples would have higher risks of behavioral problems and cognitive function issues according to this study (11).

TYPE OF PREGNANCY	AVERAGE GESTATIONAL AGE AT TIME OF DELIVERY	AVERAGE BIRTH WEIGHT
<i>Singleton</i>	<i>38.6 weeks</i>	<i>7.3 lb. (3,300 grams)</i>
<i>Twin</i>	<i>35 weeks</i>	<i>5.1 lb. (2,300 grams)</i>
<i>Triplet</i>	<i>32 weeks</i>	<i>3.7 lb. (1,660 grams)</i>
<i>Quadruplet</i>	<i>30 weeks</i>	<i>2.9 lb. (1,300 grams)</i>

Figure 4: Average gestational age and weight at time of delivery for singletons, twins, triplets, and quadruplets (American Society for Reproductive Medicine, 2012)

Clearly, there is an issue that arises with assistive reproductive technology, IVF, and fertility drugs- the high rate of multiples. There needs to be a preventative system in place, so that parents are not forced to decide between selective reduction and sicklier children.

Couples should be informed of the risk of multiples before undergoing any type of medical

intervention to conceive. The American Society for Reproductive Medicine has issued guidelines on how many embryos can be transferred, the limit at three or four, depending on the women's age and situation. However, each clinic can decide for itself whether to follow these guidelines or not. Some decide to transfer more embryos per cycle to increase their positive outcomes. The CDC released this chart on success rates of different transfers of embryos. Transferring a blastocyst, which is an embryo that had been fertilized five to six days prior, is the best chance at implantation. This is because it can be studied to see if it is a good candidate for implantation better than an embryo at the cleavage stage, two to three days after fertilization. Doctors are now being told to transfer only one embryo at a time, first a fresh one and then a frozen one if the fresh one does not implant, in order to decrease the chances of having twins. Having twins over a singleton increases the chances of high blood pressure, gestational diabetes, and preterm birth. Using these guidelines, the amount of multiples being born will decrease.

Embryo Stage (Day of Transfer)	EMBRYO TRANSFER OPTION		
	1 SET (fresh)	1 SET (fresh) + 1 SET (frozen)	1 DET (fresh)
Cleavage (2-3 days)	At least one baby: 38% Twins: Less than 1%	At least one baby: 55% Twins: Less than 1%	At least one baby: 49% Twins: 16%
Blastocyst (5-6 days)	At least one baby: 51% Twins: Less than 1%	At least one baby: 66% Twins: 1%	At least one baby: 60% Twins: 27%

Source: Centers for Disease Control and Prevention, National Assisted Reproductive Technology Surveillance System (NASS), 2010-2012.

For women who are good candidates for single embryo transfer, transferring one fresh embryo followed by one frozen embryo, if a second transfer is needed, offers the best chance of having a baby without increasing the chance for twins.

Figure 5: Embryo transfer options for women undergoing IVF (Centers for Disease Control and Prevention, 2010-2012)

Additionally, many people undergoing IVF feel the need to maximize each treatment cycle by transferring the most embryos possible. Because IVF is so expensive, couples do not want to go through it again, and therefore transfer more embryos to increase the chances of at least one implanting. If insurance were to cover IVF treatments, people are more likely to transfer less embryos each cycle (11).

Physicians have no regulations on who can write prescriptions for fertility drugs. Any doctor can do so, even if he/she does not have the required medical training to understand if the woman is at a high risk for conceiving multiples. If trained doctors were the only ones allowed to prescribe medications, then they could advise women who may release too many eggs to not receive another injection to prevent a multiple birth from occurring (11).

There is also a lack of knowledge on why preterm labor happens, and more research being performed in that field that can greatly benefit mothers who have conceived multiples. Barbara Luke at the University of Michigan has found that calcium, zinc, and magnesium taken prenatally by the woman may lead to better outcomes for the fetuses in multiple pregnancies. These ideas need to be further explored in order to help mothers who do end up conceiving multiples, although this should be a less common occurrence due to the different steps of prevention taken (11).

One widely used medical intervention to help premature babies survive is corticosteroid administration. The American College of Obstetricians and Gynecologists recommends giving a steroid shot to mothers at risk of preterm delivery between 24 and 34 weeks gestation. It can be considered for women at risk of delivering as early as 23 weeks, depending on her decision of trying to resuscitate the baby or not. These steroids are one of the most important treatments for premature babies. Babies whose mothers received a steroid shot had less severe and less frequent bouts of respiratory distress, intracranial hemorrhage, and death after delivery as compared to babies whose mothers did not receive the injection. The data seems very favorable towards using this drug, and not many adverse effects were seen when using only one or two rounds of the drug (4).

Looking at the figure below, one can see that survival rates increase for fetuses whose mothers receive this corticosteroid injection. For example, a baby born at 22 weeks only has about a 19% chance of survival, but with this drug, the chance of survival is brought up to around 33%. Modern medicine is truly amazing, and this discovery can help both premature singletons, as well as premature multiples.

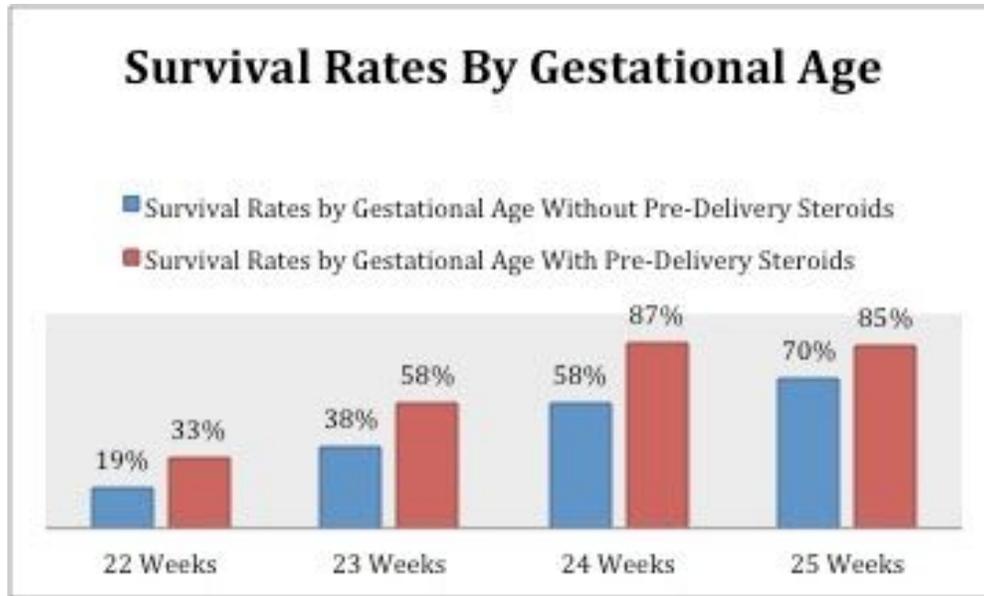


Figure 6: Survival rates by gestational age with and without steroids (Leverett, 2013)

The smallest surviving premature baby was born at 23 weeks at Sharp Mary Birch Hospital for Women & Newborns in San Diego. She was 17 weeks premature. She weighed 8.6 ounces at birth, and spent five months in the NICU before being released. Doctors did not expect her to survive, and they told her father that he had only about an hour with her before she would die. However, due to a combination of good genes and luck, she survived the terrible trials of her traumatizing entrance into the world (24).

The youngest surviving premature baby was born at 21 weeks and 6 days. She weighed less than 10 ounces. Her mother's pregnancy faced many obstacles. At 18 weeks she felt unwell and went to the hospital, where she found out she was showing signs of premature labor. Her contractions stopped after 24 hours, but at 18 weeks, she started leaking fluid. At 19 weeks, the doctor performed a scan. He believed the fetus to be 21 weeks, due to her weight and lack of amniotic fluid. Her mother did not correct him, as she knew that doctors would only revive her baby if she was delivered at at least 24 weeks. During the next three

weeks, she developed an infection, but did not tell her doctors, as they would deliver the baby then and not work to revive her. At what doctors believed was 23 weeks and 6 days, the infection had gotten worse, and her mother knew she needed treatment. She asked the doctors if they would revive the baby if she was born then and they promised they would. She had a Cesarean, and the doctor struggled to find the baby, as she was so small and hidden in the birth canal. She survived delivery and was thriving, despite what doctors had expected her prognosis to be. After a month, they asked about her true age, since she was moving around more than a 24 week baby usually does. She told them the truth and they checked her IVF records to confirm. She was released from the hospital 11 days before her due date, weighing just four pounds. This story has fuelled the fight on the legal abortion limit, which is 24 weeks. This baby was born two full weeks before the limit, and she was able to survive and thrive (3).

Consulting the chart below, one can see that these stories are quite rare, and that babies born as early as 22 or 23 weeks do not have a high chance of survival. However, it is prudent to remember that it is not our job in life to determine who is going to survive and who will not. Sometimes miracles are performed, and extremely premature babies weighing about half a pound survive. Abortion takes away this chance at survival, however little it may be. As technology continues to progress, more and more premature babies are surviving past delivery. Looking at the graph below, one can glean that a baby born at 23 weeks has a 33.3% chance of survival. This means that one in three babies born at 23 weeks survive. To then turn around and see the legal abortion limit at 24 weeks is truly astounding.

Likelihood of Survival Based on Length of Pregnancy

23 weeks: 17%

24 weeks: 39%

25 weeks: 50%

26 weeks: 80%

27 weeks: 90%

28 to [31 weeks](#): 90 to 95%

32 to 33 weeks: 95%

34+ weeks: Almost as likely as a full-term baby

Figure 7: Percent of surviving babies delivered at each week of gestation (Danielsson, 2020)

These stories lend themselves to a question- how can healthcare providers offer abortions on fetuses that, with the proper medical care, have a chance at life? Most people who define themselves as pro-choice, only do so because the aborted fetus would not survive outside the mother's womb. However, if there is medical proof that fetuses can survive before the legal limit on abortion, what does that do to the defense of these pro-choice individuals? This is one of the reasons why abortion is such a hot button topic in politics and everyday life today. With medical technology becoming more advanced and saving the lives of more and more premature babies, the pro-choice standpoint is being put to the test.

All things considered, it is clear that abortion will remain a tough topic for years to come. There is no way to fully prevent all unplanned pregnancies, as contraceptives are not 100% effective and not everyone uses a form of contraceptive. It is especially difficult when a teenager becomes pregnant. A teenager does not have the means of an adult to raise her child, she may not have an active partner, and her family may not be supportive of the

pregnancy. Due to these major reasons, it is extremely difficult to say that abortion should be outlawed, especially in regards to teenagers. However, if rates of teenage pregnancy decrease due to better sexual education in schools, abortion will become less necessary in regard to teenagers. Additionally, there are state and government programs to help struggling and pregnant teenagers. The best possible outcome is to eliminate unintentional teenage pregnancies, but since that is not possible, these programs can be put to great use.

Conclusions:

Ultimately, there will never be one opinion on abortion and what should be regulated by the government, but clearly, educating individuals on these practices can be very useful. It is hopeful that teenage pregnancies will continue to see a downward trend, as sexual education programs are being reevaluated in schools, and teachers are being better trained. No teenager deserves to have to make the tough choice to keep or to abort her baby. Hopefully, less teenagers will have to go through this difficult time as programs become better.

Adults can also struggle with unplanned pregnancies or becoming pregnant with multiple fetuses. Educating medical professionals on how best to reduce the chances of a multiple pregnancy when going through IVF or using fertility drugs will prove to be immensely beneficial to lowering the rates of multiple pregnancies. Regulations put into place on which physicians can prescribe fertility drugs can benefit this situation as well. Raising awareness for the risks associated with bearing multiples will render individuals more cautious with how many embryos they transfer, and which medications they take.

Hopefully, multiple rates will continue to drop, as more and more physicians and parents are educated on the risks of carrying and delivering too many fetuses in one pregnancy.

Prematurely delivered infants continue to see better outcomes with each new technological feat that is developed. Hopefully, more will become known on why some mothers go into premature labor, and more research conducted to prevent this from occurring. The future is very bright for premature infants, as rates of survival increase due to more research and new technologies.

In the age of technology, and with more and more babies surviving at less weeks gestation than ever before, one might start to wonder how this new information will play out in the minds of pro-choice individuals, especially those who are on the border between the two sides. With this information, as well as other facts on the subject, abortion may become less common, and be deemed by medical professionals a necessary but rare occurrence.

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