

Review Article

WHEN DOES HUMAN LIFE BEGIN? AND DOES IT MATTER?

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Received 20th March 2023; Accepted 21th April 2023; Published online 31st May 2023

ABSTRACT

On June 2, 2024, the Supreme Court overturned *Roe v. Wade*, reigniting concerns about women's bodily autonomy and legal access to abortion. *Roe v. Wade* implemented the trimester framework that impinges on how we define the beginning of human life. During the first trimester, the embryo develops into a fetus. The fetus is not considered medically viable outside of the maternal womb, however, until after the 23rd week of pregnancy. Unfortunately, human embryonic and fetal development is subjected to significant congenital abnormalities due to higher rates of aneuploidy, or chromosomal instability, in humans compared to all other mammals. This chromosomal aneuploidy can be prenatally screened as early as 10 weeks of gestation when the parents are currently allowed, in most of the states in the U.S., to consider abortion if they find themselves unable to medically or financially support the baby and themselves. The right to abortion was initially granted by the *Roe v. Wade* ruling in 1973 by the Supreme Court and further bolstered by successive cases. However, since the Supreme Court ruling of *Gonzales v. Carhart* in 2007 which found the Partial-Birth Abortion Ban Act of 2003 constitutional, the political and legal climates have shifted and ultimately led to the current debate of whether the paramount *Roe v. Wade* case was valid in the first place. This review will explore the biological processes of early human development, examine the legal history of abortion, and provide both arguments from pro-life and pro-choice with regard to abortion.

Keywords: abortion, embryonic development, *Roe v. Wade*, gestation.

INTRODUCTION

In Korea, babies are considered 1-year-old immediately after birth because the time spent developing during the nine months of pregnancy is counted as a year. Does this mean that an embryo should be thought of as a human being? When does an embryo become a fetus, and when does it become fully independent outside of the maternal womb? These questions may be important in deciding when a fetus is considered an independent human being, and therefore, potentially unethical to abort. On May 2, 2022, a draft of the Supreme Court's decision to reassess and overturn the *Roe v. Wade* ruling was leaked to the public (Berman, 2022). The *Roe v. Wade* decision has been the keystone of protecting pregnant women's rights to bodily autonomy. Although the draft is considered not yet final, striking the *Roe v. Wade* decision down will have important implications, such as having the majority of the states in the U.S. essentially ban legal access to abortion. Following the leak, people all over the world have protested and led marches to protect women's right to privacy and autonomy. One of the fundamental arguments the "pro-life" camp proclaims is the timing of when human life begins in the womb. Should the stage of fetal development be at the crux of women's access and right to abortion? This essay will review the process of human embryonic and fetal development, the historical and legal background of *Roe v. Wade*, and arguments for and against abortion.

DISCUSSION

What are the biological processes and time course of early human development? A full gestation, or pregnancy, is approximately 40 weeks, which is then divided into three trimesters that consist of three months (Cleveland Clinic, 2020). A human embryo starts its

Within the first 24 hours after fertilization, the zygote that contains 23 chromosomes each from the male and the female gamete undergoes rapid cellular divisions (Cleveland Clinic, 2020; Zhai *et al.*, 2022). With gastrulation, during which the embryo acquires head-to-tail and front-to-back orientation, neurulation, and organogenesis, in which the nervous system and organs begin to develop, the embryo develops into a fetus during the first 8 weeks of pregnancy (Cleveland Clinic, 2020; Zhai *et al.*, 2022). The fetus is the earliest stage in which features of the baby are evident, such as ears, arms, legs, fingers, toes, eyes, neural tubes, digestive tract, and sensory organs (Cleveland Clinic, 2020). By the end of this first trimester, the fetus is fully formed and is about 4 inches long, and weighs 1 ounce. The second trimester spans from weeks 13 through 24, in which the nervous system starts to function, reproductive organs and genitalia fully develop, and the parents can see an ultrasound to determine the gender. A baby born prematurely during the second trimester may survive after the 23rd week if it is given intensive care. However, the fetus born before the 23rd week of pregnancy is medically not viable by oneself, suggesting that it critically depends on the mother for survival before it reaches the 23rd week in the womb. During the final third trimester, the fetus gains body fat and develops its brain rapidly as well as starts to see and hear (Cleveland Clinic, 2020). However, human embryonic and fetal development does not always occur seamlessly. In fact, humans have the highest rates of chromosomal abnormalities among mammals where 50-80% of blastomeres exhibit abnormal numbers of chromosomes or aneuploidy (Carbone and Chavez, 2015). Despite the chromosomal instability, human embryos continue to divide and undergo cellular divisions, whereas, for instance, mouse embryos readily terminate in the face of aneuploidy. This underlies diverse human neurodevelopment diseases that arise from aneuploidy, such as Down Syndrome and Klinefelter's Syndrome, which can be prenatally screened as early as 10 weeks gestation (Lefevre and Sundermeyer, 2022). Indeed, aneuploidy is the leading genetic cause of miscarriage and congenital birth defects that causes an immense economic toll on the parents who may not be able to fully support their child's medical care (Hassold, Hall and Hunt, 2007). In summary, the human embryo becomes a fetus at

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around the 8th week of pregnancy and is not able to independently survive outside of the maternal womb before the 23rd week in development. Due to high rates of aneuploidy in humans, especially in our aging society, early prenatal screening for congenital abnormalities remains critical for not only the fetus but also for the parents who will have to make profound decisions for the future.

If you were to have found out about your fetus harboring chromosomal aneuploidy diseases at 10 weeks of gestation when the fetus is not considered medically independent from the mother, then what would be your options? *Jane Roe v. Henry Wade* ruling in 1973 is a landmark decision of the U.S. Supreme Court that opened up avenues for pregnant women to seek an abortion without government restriction. The court ruled 7-2 in favor of Jane Roe, and the right to abortion was established under the Due Process Clause of the 14th Amendment of privacy (Quinn, 2022). Although this decision effectively struck down many U.S. federal and state abortion laws, the court also provided a trimester framework for when the state, in promoting its interests, can restrict abortion. Another critical case was the *Planned Parenthood of Southeastern Pennsylvania v. Robert Casey* of 1992, which bolstered the *Roe v. Wade* ruling, prohibited the state from banning abortion, and allowed rights to women. These rulings became the milestones in the history of women's rights and abortion in the United States. In *Stenberg v. Carhart* (2000), the Supreme Court further confirmed that under the 14th Amendment, a state cannot pass an anti-abortion law that does not include an exception for the health of the mother and struck down Nebraska's partial-birth abortion statute. It further emphasized that states cannot pass a law that criminalizes partial-birth abortions unless it is thoroughly clear that it does not extend to other forms of abortion (*Stenberg v. Carhart*, 2000). However, the tide started turning when the Republican, George W. Bush (2001-2009) took office from the Democrat, Bill Clinton (1993-2001). In 2003, Congress passed the Partial-Birth Abortion Ban Act to prohibit and narrow down the definition of the term "partial-birth abortion." Under this Act, partial-birth abortion was now prohibited unless to save the life of the mother or protect the mother from any health issues. Congress stressed the "gruesome and inhumane" nature of the usual second-trimester procedure, "dilation and evacuation" (D&E), and that the Act does not regulate the most common abortion procedures used in the first trimester of pregnancy when the fetus is still considered an embryo (*Gonzales v. Carhart*, 2007a). In *Gonzales v. Carhart* (2007), the U.S. Supreme Court held in a 5-4 decision that the Partial-Birth Abortion Ban Act of 2003 passed by Congress was constitutional (*Gonzales v. Carhart*, 2007b). This ruling created the precedent that anyone who kills a living fetus may be subjected to legal consequences unless the procedure was necessary for the survival of the mother. This ban contained no exception for women's health, but rather, only a life or death situation for the mother. These cases illuminate the ever-changing legal climate for abortion and women's rights based on the governmental and political atmosphere.

Currently, there are about 73 million induced abortions each year, and 61% were unintended pregnancies (Abortion, 2021). Overall, 29% "of all pregnancies end in an induced abortion." Many of these abortions are unsafe and even under illegal circumstances. In fact, about 4.7 to 13.2% of maternal deaths are due to unsafe abortion. Inequality in health care may also be found in the statistics on abortion as well. To illustrate, about 30 in 100,000 women die of unsafe abortions in developed countries, whereas about 220 in 100,000 women die in developing countries (Abortion, 2021). In fact, in developing countries, there were about 7 million women who received hospital care for unsafe abortions from developing countries in 2012. Unsafe abortions bring negative consequences to the mothers, but also to the countries that are prohibiting safe and legal

abortion. For example, America spent 53 million dollars on treatment after unsafe abortions (Abortion, 2021). If all abortions are made illegal, some mothers would have to birth babies who wouldn't survive outside the womb or birth babies related to traumatic experiences such as rape or incest. Notably, the majority of Americans support the right to abortion (Enten, 2022), at least in the first trimester, so the Supreme Court would be ignoring the majority opinion of the country by reversing *Roe v. Wade*. Additionally, the rights of women that would be violated greatly outnumber those that would be gained by this reversal. If women are unable to access quality abortion care, they are putting their lives in danger, which is violating the right to life, the right to the highest attainable standard of physical and mental health, the right to benefit from scientific progress and its realization, and the right to decide freely and responsibly on the number, spacing, and timing of children (Abortion, 2021). Given the history of laws against abortion, some support legalizing abortion for the equity it would bring to healthcare. For example, Northern Ireland banned abortion completely, but people found other ways. Some with resources would readily travel to England to get the surgery or some would buy pills on the Internet. The current health care system in the United States brings inequality among race and wealth; the people who are the most hurt by repealing *Roe* would be women of ethnic minorities or from low socioeconomic backgrounds (Lewis, 2022), who may be less able to travel to other places with legalized abortions or afford health and childcare associated with the birthing child. Amongst the heated opposition against the repealing of *Roe*, some are still against abortion. However, these arguments are countered by the "pro-life" movement, which centers on the belief that abortion is killing a life, which is therefore morally wrong. However, this argument is philosophically flawed. As detailed above, the moral state of a fetus during the first trimester especially is questionable, as the fetus has little more personhood than any other group of cells in a person's body. And thus, the argument depends on the moral potential for life. While certain extreme philosophers would argue that life on its own is a net painful experience and that birthing a child at all is an amoral act (Rothman, 2017), a reasonable argument that a fetus' moral right to potential life does not overpower the present rights of life of the woman carrying it challenges this stance (Manninen, 2007). While a complex issue, it is clear the repercussions of repealing *Roe v. Wade* would do considerable harm to women and mark a truly egregious step backward in reaching gender equality in the United States.

Supreme Court Justice Ruth Bader Ginsburg said "the irony and tragedy is any woman of means can have a safe abortion somewhere in the United States. But women lacking the wherewithal to travel can't. There is no big constituency out there concerned about access restrictions on poor women." She had also expressed deep concerns about the ruling of *Roe v. Wade* and argued that legalizing access to abortion should have been based not on the privacy argument but rather on gender equality (Gupta, 2021). On June 24 2022, *Dobbs v. Jackson Women's Health Organization*, a U.S. Supreme Court case about the constitutionality of a 2018 Mississippi state law, which bans most abortion operations after the first 15 weeks of pregnancy, overturned *Roe v. Wade* and *Planned Parenthood of Southeastern Pennsylvania v. Robert Casey* decisions. The ruling stated that the Constitution does not confer a right to abortion and that the authority to regulate abortion is "returned to the people and their elected representatives." Furthermore, the ruling established a lenient standard for the regulation of abortion, stating that such laws should be evaluated under "rational basis" (*Dobbs v. Jackson Women's Health Organization*, 2021-2022). This means that abortion lost status as a fundamental right, and states can now regulate abortion. Following the ruling, as of March 2022, thirteen states have implemented a full ban on abortion, with little or no exceptions.

CONCLUSION

15 weeks of gestation relates to the beginning of the second trimester when the fetus is not viable outside of the maternal womb. This critical dependency on the mother for survival suggests the “pro-life” argument hinges on the potentiality for life, a life of which it is impossible to predict the quality. In this regard, the woman carrying the fetus must make the decision as to what that may be. More importantly, bringing equality to gender disparity must be at the crux of discussion as the right to abortion critically affects the bodily autonomy of women.

REFERENCES

- Abortion. (2021, November 25). World Health Organization. Retrieved May 28, 2022, from <https://www.who.int/news-room/fact-sheets/detail/abortion>
- Berman, R. (2022, May 6). Explaining leaked Roe v. Wade opinion: What could happen next? Medical News Today. Retrieved May 28, 2022, from <https://www.medicalnewstoday.com/articles/explaining-leaked-roe-v-wade-opinion-what-could-happen-next>
- Carbone, L., & Chavez, S. L. (2015). Mammalian pre-implantation chromosomal instability: species comparison, evolutionary considerations, and pathological correlations. *Systems biology in reproductive medicine*, 61(6), 321–335. <https://doi.org/10.3109/19396368.2015.1073406>
- Cleveland Clinic. Fetal development: Month-by-month stages of pregnancy. (2020, April 16). Retrieved May 28, 2022, from <https://my.clevelandclinic.org/health/articles/7247-fetal-development-stages-of-growth>
- Enten, A. C. B. H. (2022, May 13). A majority of Americans back abortion rights, but the support is smaller than you might think - CNNPolitics. CNN. Retrieved May 28, 2022, from <https://edition.cnn.com/2022/05/13/politics/abortion-right-polling-roe-v-wade/index.html>
- Gonzales v. Carhart, 550 U.S. 124 (2007). <https://www.law.cornell.edu/supct/html/05-380.ZD.html>
- Gonzales v. Carhart, 550 U.S. 124 (2007). <https://www.supremecourt.gov/opinions/06pdf/05-380.pdf>
- Gupta, A. H. (2021, May 19). Why Ruth Bader Ginsburg Wasn't All That Fond of Roe v. Wade. The New York Times. Retrieved May 28, 2022, from <https://www.nytimes.com/2020/09/21/us/ruth-bader-ginsburg-roe-v-wade.html>
- Hassold, T., Hall, H., & Hunt, P. (2007). The origin of human aneuploidy: where we have been, where we are going. *Human molecular genetics*, 16 Spec No. 2, R203–R208. <https://doi.org/10.1093/hmg/ddm243>
- LeFevre, N. M., & Sundermeyer, R. L. (2020). Fetal Aneuploidy: Screening and Diagnostic Testing. *American family physician*, 101(8), 481–488.
- Lewis, H. (2022, May 5). How to Win the Abortion Argument. The Atlantic. Retrieved May 28, 2022, from <https://www.theatlantic.com/ideas/archive/2022/05/feminist-activism-roe-abortion-debate/629769/>
- Lucia Carbone & Shawn L. Chavez (2015). Mammalian pre-implantation chromosomal instability: species comparison, evolutionary considerations, and pathological correlations. *Systems Biology in Reproductive Medicine*, 61(6), 321–335. <https://doi.org/10.3109/19396368.2015.1073406>
- Manninen, B.A. Revisiting the argument from fetal potential. *Philos Ethics Humanit Med* 2, 7 (2007). <https://doi.org/10.1186/1747-5341-2-7>
- Quinn, M. (2022, May 5). A timeline of the abortion debate at the Supreme Court, from Roe v. Wade to now. Retrieved June 1, 2022, from <https://www.cbsnews.com/news/supreme-court-roe-v-wade-abortion-debate-timeline/>
- Read Justice Alito's initial draft abortion opinion which would overturn Roe v. Wade. (2022, May 2). Retrieved June 1, 2022, from <https://www.politico.com/news/2022/05/02/read-justice-alito-initial-abortion-opinion-overturn-roe-v-wade-pdf-00029504>
- Rothman, J. (2017, November 27). The Case for Not Being Born. The New Yorker. Retrieved May 28, 2022, from <https://www.newyorker.com/culture/persons-of-interest/the-case-for-not-being-born>
- Stenberg v. Carhart, 530 U.S. 914 (2000). <https://supreme.justia.com/cases/federal/us/530/914/>
- Zhai, J., Xiao, Z., Wang, Y., & Wang, H. (2022). Human embryonic development: from peri-implantation to gastrulation. *Trends in cell biology*, 32(1), 18–29. <https://doi.org/10.1016/j.tcb.2021.07.008>
- The New York Times. (2022, March 28). Abortion Laws Across the US. Retrieved June 1, 2022, from <https://www.nytimes.com/interactive/2022/us/abortion-laws-roe-v-wade.html>
