

## Abortion and Related Causes: a review

Shatha Hussein Kadhim<sup>1</sup>, Moayad Mijbil Ubaid<sup>2</sup> and Zahraa abed

Al-kareem<sup>3</sup>

<sup>2</sup>College of Basic Education, University of Sumer

<sup>1&3</sup>College of Pharmacy/ University of Kerbala

<sup>1</sup>[shatha.kadhim@uokerbala.edu.iq](mailto:shatha.kadhim@uokerbala.edu.iq), <sup>2</sup>[moayadmijbil@gmail.com](mailto:moayadmijbil@gmail.com) and

Received: (15/12/2022) Accepted: (1/2/2023)

### Abstract:

Abortion is a common and safe health intervention when performed in one of the methods recommended by the organization and appropriate for the duration of pregnancy and by a person with the necessary skills. Intentional abortion ends 6 out of 10 unintended pregnancies. Approximately 97% of unsafe abortions occur in developing nations, accounting for around 45% of all abortions. Unsafe abortion can lead to physical and mental health problems, place a financial and social burden on individuals, communities, and healthcare systems, and it is a major preventable cause of maternal death and morbidity. Poor access to abortion treatment that is quick, safe, inexpensive, and respectful is a significant issue for both human rights and public health. In this review we focused on the types of abortion and the important causes that led to it.

Keywords: Abortion, types of abortion, causes of abortion.

### الخلاصة:

الإجهاض هو تدخل صحي شائع وآمن عندما يتم إجراؤه بإحدى الطرق الموصى بها من قبل المنظمة ومناسبة لمدة الحمل ومن قبل شخص لديه المهارات اللازمة. الإجهاض المتعمد ينهي 6 من كل 10 حالات حمل غير مقصود. يحدث ما يقرب من 97% من حالات الإجهاض غير الآمن في الدول النامية، وهو ما يمثل حوالي 45% من جميع حالات الإجهاض. يمكن أن يؤدي الإجهاض غير الآمن إلى مشاكل صحية جسدية وعقلية، ويفرض عبئاً مالياً واجتماعياً على الأفراد والمجتمعات وأنظمة الرعاية الصحية، وهو سبب رئيسي يمكن الوقاية منه لوفيات الأمهات واعتلالهن. يعد ضعف الوصول إلى علاج الإجهاض السريع والآمن وغير المكلف والاحترام قضية مهمة لكل من حقوق الإنسان والصحة العامة. ركزنا في هذه المراجعة على أنواع الإجهاض والأسباب المهمة التي أدت إليه.

## 1-Introduction:

Abortion is the language of an embryo that has stopped developing prematurely, or an abortion is an underdeveloped organ; in language, the fetus is aborted; a mother throwing her child before it is complete; He is sloppy. It is also called excretion [1] in the sense that it causes an abortion.

It involves the removal of the fetus from the womb before it is capable of life, ending the pregnancy. It is referred described as a spontaneous abortion since a miscarriage can occur on its own as a result of pregnancy difficulties. An elective abortion is one carried out for any reason, but a therapeutic abortion is one carried out to safeguard the pregnant woman's health. Abortion is a term that frequently refers to an induced abortion. In affluent nations where it is legal, induced abortion is one of the safest medical treatments. [2] According to the Oxford Dictionary, this is when a human pregnancy is intentionally terminated, frequently in the 28th week of pregnancy. [3]

Abortion seems to have a long history and has been carried out using a variety of techniques, including the use of medicines, sharp objects, physical harm, and other conventional means. whereas modern medicine induces abortions with medications and operations. Abortion is seen differently in different countries according to sharia, custom, and culture. The morality and legality of abortion are hotly debated in many nations. In many nations, abortion and related topics are prominently discussed in national politics. Pro-choice activists and anti-abortion movements frequently oppose each other on these matters. [4]

### 1-1-Types of abortion:

#### A-Spontaneous abortion

Complete spontaneous abortion about 6 weeks after pregnancy, i.e. 8 weeks after LMP

The definition of gestational age varies from nation to country. A spontaneous abortion is when a fetus leaves the uterus owing to accidental harm or natural reasons before the twenty-second week of pregnancy. [5] The majority of failures are due to chromosome duplication errors, while environmental variables can also be to blame. A "premature birth" is a pregnancy that lasts less than 37 weeks and results in the survival of the unborn child. A "stillborn" is a term used to describe a fetus that passes away in the womb after around 22 weeks or during delivery. Despite the fact that the phrases are occasionally used interchangeably, premature births and stillbirths are generally not regarded as failures.

Between 10% and 50% of pregnancies result in an apparent clinical miscarriage, depending on the age and health of the expectant mother. [6] The majority of spontaneous abortions happen very early in the pregnancy, frequently so early that the mother is not even aware that she is carrying a child. One study that examined ovulation and pregnancy hormones found that 61.9% of fetuses were lost before 12 weeks, and that 91.7% of these losses occurred either under clinical circumstances or without the pregnant woman's knowledge. [7]

After the tenth week of the previous menstrual cycle, the risk of miscarriage dramatically decreases. [6][8] In a study of 232 pregnant women, the pregnancy loss rate after 8.5 weeks was merely 2%, indicating a "presumptive total loss at the end of the fetal period" (10 weeks LMP).

Fetal chromosomal abnormalities, which are the most frequent cause of spontaneous abortion in the first trimester [9] and are responsible for about fifty percent of early pregnancy losses. [10] Various causes include infections, diseases of the blood vessels (like lupus), diabetes, other hormonal issues, and anomalies in the uterus. [9] Among the main causes of spontaneous abortion are older mother age and prior miscarriages. [10] Accidental trauma can also result in it, and either scenario is considered to be an induced abortion or miscarriage. [11]

### **B-Intentional abortion:**

The choice of induced abortion method mostly relies on the size and age of the fetus. There are various ways available. [12] The legality, territoriality, and best practice for the doctor and patient are also taken into consideration while choosing particular operations. Most induced abortions are either therapeutic or elective, and an abortion is a therapeutic procedure in the following circumstances:

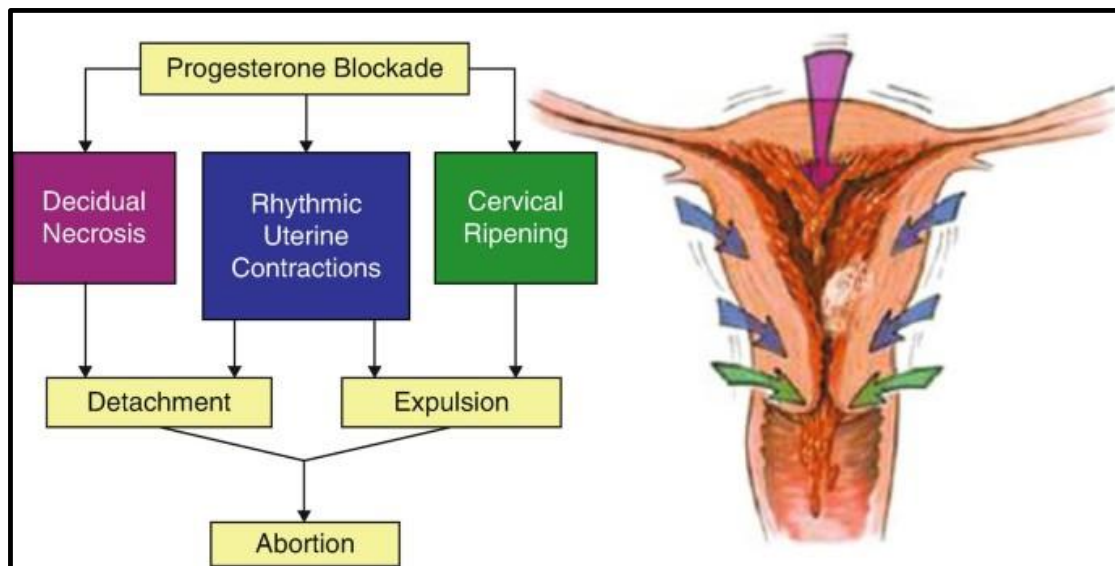
- saving a pregnant woman's life [13]
- Preserving women's physical or mental health [13]
- Fetal malformation.
- Strictly limiting the number of fetuses to lessen the risks to one's health posed by multiple pregnancies. [13]
- When the fetus has an "abnormal quality of life," meaning that it suffers from serious physical disabilities, serious genetic problems, or serious mental defects. For example, Section [1] (1) d allowed [of the United Kingdom Abortion Act 1967 to terminate a pregnancy at any time if there is a significant risk that the newborn child will have a serious disability].[14]

### **1-2-Abortion methods**

The appropriate method of abortion is determined by the gestational age.

#### **1-2-1-Pharmacological methods:**

"Medical abortion" is abortion without surgery and in which pharmaceutical drugs are used, and it is effective in the first trimester of pregnancy. Medical abortion constitutes 10% of all abortions in the United States of America [15] and Europe. Combined methotrexate or mifepristone, followed by a prostaglandin When used within 49 days of pregnancy, it is noteworthy that about 92% of women who underwent a medical abortion with the regimen The compound completed the abortion without surgical intervention.[16] Misoprostol can be used alone, but will achieve less efficacy than in combination regimens.



**Figure (1-1) Abortion mechanism**

### 1-2-2-surgical methods:

Aspiration abortion after 8 weeks of gestational age (6 weeks after conception). 1: Bladder 2: Fetus 3: Endometrium 4: Speculum 5: Medical scoop 6: Suction pump attached

Suction or vacuum abortion is the most popular procedure during the first 12 weeks of pregnancy [18]. Manual aspiration (MVA) abortion is done by removing the fetus, placenta and membranes by suction using a hand syringe, while an electric aspiration (EVA) abortion is done by using an electric pump. These methods are comparable, and differ in the mechanism used to perform aspiration, at what gestational age it can be used, and whether dilation of the cervix is necessary. Manual aspiration abortion, also known as "miniature aspiration" and "menstrual extraction," can be used very early in pregnancy, when the cervix does not need to be dilated. Surgical methods are sometimes called 'Surgical Termination of Pregnancy' (STOP). Dilation and Evacuation (D&E) is used from about 15th to 26th week. Dilation and evacuation (D&E) is done by opening and emptying the cervix using surgical instruments and suction. [17]

The second most commonly used technique is dilation and draining (D&C), which is a standard gynecological procedure that is applied for more than one reason such as examining the uterine lining for possible damage, or investigating cases of abnormal bleeding and miscarriage. The term "shoveling" describes using a shovel to wipe the uterine walls. Only in cases where manual aspiration abortion is not an option does the World Health Organization advice this procedure, also known as acute scraping. Regardless of the procedure employed, the word (D&C), or occasionally vacuum scoop, is used as a metaphor for first-trimester abortion. [18].

Sometimes an abortion is performed by inflicting abdominal trauma. If the hit is strong enough, it may result in major internal injuries without necessarily causing an abortion. [19]

Abortion in this way is spontaneous or intentional and is illegal in most countries. There is an old Southeast Asian tradition regarding abortion, which is to attempt an abortion by means of a massage.[20] There are reliefs adorning the temple of Angkor Wat in Cambodia depicting a demon performing such an abortion on a woman who has been sent to Hell.[21]

Another method is self-induced abortion, which is unsafe and misoprostol is misused, and non-surgical instruments such as a sewing needle and clothing pieces are inserted into the uterus. We rarely see these methods in developed countries where surgical abortion is available and legal.[22]

### **1-3-Health reasons:**

When performed prior to the 16th week of gestation, early surgical abortion is a straightforward procedure and is safer than childbirth. [23] [24] Abortion techniques have a low risk of life-threatening complications, just like the majority of minimally invasive procedures. [25] [26] with the length of the pregnancy, the risk of complications rises. [27] [28]

In the event that the abortion occurred during the first trimester of the pregnancy, women typically experience minimal pain. A study of 2,299 patients conducted in 1979 revealed that 97% of them endured some level of pain. The patients' pain was rated as being greater than a headache or backache, but less severe than an earache or toothache. [29] Surgical procedures involve the use of both general and local anesthetics. [30]

### **1-4-physical health:**

The first of a two-part study conducted by the medical organization Advice & Aid Pregnancy Centers included women who had previously had abortions, allowing for the prediction of side effects and physical complications. According to the study, 1 in 100 women who had an abortion early on will experience complications, while 1 in 50 women who had abortions late in pregnancy will experience complications. [31]

#### **-These effects include:**

1. Heavy bleeding: The most frequent issue following a miscarriage is heavy bleeding. Cutting the placenta that is still inside the uterus usually results in excessive bleeding. We refer to this as an incomplete abortion. The bleeding will frequently stop if the pieces are taken out, but occasionally bleeding from a ruptured cervix needs to be stopped by suturing.

2-Abdominal pain and cramping after the procedure: This is possible both before and after the procedure, as most abortion clinics only use local anesthesia, leaving the patient awake.

3-Uterine or blood infection: Both bacteria that enter the bloodstream and anorectal bacteria that pass through the open cervix into the uterus can cause infection.

4- Damage to the cervix: In order for an abortion to take place, the cervix must be stretched with a great deal of force. Forcing the cervix to contract can cause damage, especially in younger women, where the cervix may become damaged if the cervix cannot remain sufficiently closed to support a pregnancy. youngsters in the future.

5- Uterine scarring: As a result of the use of intrauterine devices, scarring may make it difficult for future pregnancies to successfully implant a fertilized egg (2–5% of the time), and scraping the uterine walls may result in unintended perforations and hysterectomy (removal of the uterus). Additionally, under extreme conditions, it may result in peritonitis, a condition that can be fatal. [32]

### **1-5-Mental health:**

A contentious topic is the link between induced abortion and mental health. [40][41] Although some studies have suggested that there may be a link, scientific research has not been able to demonstrate a direct causal relationship between abortion and poor mental health [33][34]. A woman is more likely to experience negative emotions after an abortion if she has preexisting conditions like emotional attachment to the pregnancy, a lack of social support, a history of mental illness, and a conservative view of abortion. [35]

The “American Psychological Association” (APA) concluded that significant adverse reactions to abortion "occur rarely [after an abortion] and if they do, they are compatible with the strains of typical normal life" in a review from 1990. [36] In August 2008, the organization updated and altered their conclusions to reflect the fresh data, concluding once more that induced abortion does not worsen mental health issues. [37] [38] Higher-quality studies revealed little, if any, changes in women's mental health after the abortion, whereas lower-quality studies reported detrimental effects on women's mental health, according to a 2008 evaluation by a team from the Johns Hopkins Bloomberg School of Public Health. [39] The Royal College of Psychiatrists in the UK updated their policy statement in August 2008 after conducting a comprehensive assessment of the medical literature.

### **1-6-Gender-selective abortion and female infanticide:**

Ultrasound and amniocentesis allow parents to determine the sex of the newborn before birth. The development of this technology has resulted in sex-selective abortion, or the intentional termination of a fetus' female.

The disparity between the birth rates of male and female children found in some situations is thought to be partially caused by sex-selective abortion. It is rumored that China, Taiwan, South Korea, and India are to blame for the preference for male offspring and female abortion in many parts of Asia. [40] The economic importance of men in India, the high price of the dowry, and the Hindu custom requiring a male relative to execute the death rites all contributed to the culture of son preference. [41] During the 1970s and 1980s, when diagnostic tests were often used, advertisements for their services stated things like, "Invest Rs 500 [for a sex test] now and save Rs 50,000 [for dowry] later." [42] Male to female ratio in India in 1991. India's male-to-female ratio changed from its biological base of 105 to 100 in 1991 to 108 to 100. [43] According to research, 10 million female embryos will be terminated between 1985 and 2005. [44].

Prenatal sex-selective abortion was made illegal in India in 1994, and in 2002 the government took steps to outlaw gender-selective abortion completely..[45]

With 1,400 occurrences per day, Morocco leads all countries in the world for illegal abortions, and according to statistics from the National Office for 2017, there were 34,000 abortions in Tunisia, 20% of which were performed on single women. The Saudi Arabian Ministry of Health reported that 51,000 abortions—a 27 percent rise over 2013—were recorded there in 2014 [46] [47]. In France, Simone Fay's bill is credited with establishing abortion as a legal procedure. the 17th of January 1975,.

### conclusion:

From the previous studies, it was found that there are many factors and causes that can lead to abortion, including spontaneous and intentional ones, in addition to the wrong use of medicines, but the social environment and habits affect the continuity of pregnancy and reduce abortion complications.

### References:

1. Kulczycki A. "Abortion". Oxford Bibliographies. Archived from the original on 13 April 2014. Retrieved 9 April 2014.
2. The Johns Hopkins Manual of Gynecology and Obstetrics (4 ed.). Lippincott Williams & Wilkins. 2012. pp. 438–439. ISBN 9781451148015. Archived from the original on September 10, 2017.
3. "How many people are affected by or at risk for pregnancy loss or miscarriage?". www.nichd.nih.gov. July 15, 2013. Archived from the original on April 2, 2015. Retrieved March 14, 2015.
4. "Home : Oxford English Dictionary". www.oed.com. Archived from the original on 19 August 2020. Retrieved 5 April 2019.
5. "Abortion (noun)". Oxford Living Dictionaries. Archived from the original on 28 May 2018. Retrieved 8 June 2018. [mass noun] The deliberate termination of a human pregnancy, most often performed during the first 28 weeks of pregnancy
6. Grimes DA, Benson J, Singh S, Romero M, Ganatra B, Okonofua FE, Shah IH (November 2006). "Unsafe abortion: the preventable pandemic" (PDF). *Lancet*. **368** (9550): 1908–1919. doi:10.1016/S0140-6736(06)69481-6. PMID 17126724. S2CID 6188636. Archived (PDF) from the original on 29 June 2011.
7. Raymond EG, Grossman D, Weaver MA, Toti S, Winikoff B (November 2014). "Mortality of induced abortion, other outpatient surgical procedures and common activities in the United States". *Contraception*. **90** (5): 476479. doi:10.1016/j.contraception.2014.07.012. PMID 25152259.
8. Raymond EG, Grimes DA (February 2012). "The comparative safety of legal induced abortion and childbirth in the United States". *Obstetrics and Gynecology*. **119** (2 Pt 1): 215–219. doi:10.1097/AOG.0b013e31823fe923. PMID 22270271. S2CID 25534071. .
9. "Preventing unsafe abortion". World Health Organization. Archived from the original on 23 August 2019. Retrieved 6 August 2019.

10. Moseson H, Jayaweera R, Raifman S, Keefe-Oates B, Filippa S, Motana R, et al. (October 2020). "Self-managed medication abortion outcomes: results from a prospective pilot study". *Reproductive Health*. **17** (1): 164. doi:10.1186/s12978-020-01016-4. PMC 7588945. PMID 33109230.
11. Moseson H, Jayaweera R, Egwuatu I, Grosso B, Kristianingrum IA, Nmezi S, et al. (January 2022). "Effectiveness of self-managed medication abortion with accompaniment support in Argentina and Nigeria (SAFE): a prospective, observational cohort study and non-inferiority analysis with historical controls". *The Lancet. Global Health*. **10** (1): e105–e113. doi:10.1016/S2214-109X(21)00461-7. PMID 34801131.
12. Faúndes A, Shah IH (October 2015). "Evidence supporting broader access to safe legal abortion". *International Journal of Gynaecology and Obstetrics. World Report on Women's Health 2015: The unfinished agenda of women's reproductive health*. **131** (Suppl 1): S56–S59. doi:10.1016/j.ijgo.2015.03.018. PMID 26433508..
13. Latt SM, Milner A, Kavanagh A (January 2019). "Abortion laws reform may reduce maternal mortality: an ecological study in 162 countries". *BMC Women's Health*. **19** (1): 1. doi:10.1186/s12905-018-0705-y. PMC 6321671. PMID 30611257.
14. Zhang J, Zhou K, Shan D, Luo X (May 2022). "Medical methods for first trimester abortion". *The Cochrane Database of Systematic Reviews*. **2022** (5): CD002855. doi:10.1002/14651858.CD002855.pub5. PMC 9128719. PMID 35608608
15. "Abortion – Women's Health Issues". Merck Manuals Consumer Version. Archived from the original on 13 July 2018. Retrieved 12 July 2018.
16. Lohr PA, Fjerstad M, Desilva U, Lyus R (2014). "Abortion". *BMJ*. 348: f7553. doi:10.1136/bmj.f7553. S2CID 220108457.
17. Jump up to: a b c d Shah I, Ahman E (December 2009). "Unsafe abortion: global and regional incidence, trends, consequences, and challenges" (PDF). *Journal of Obstetrics and Gynaecology Canada*. **31** (12): 1149–1158. doi:10.1016/s1701-2163(16)34376-6. PMID 20085681. Archived from the original (PDF) on 16 July 2011.
18. "Abortion". *www.who.int*. Archived from the original on 13 April 2021. Retrieved 14 April 2021.
19. Sedgh G, Bearak J, Singh S, Bankole A, Popinchalk A, Ganatra B, et al. (July 2016). "Abortion incidence between 1990 and 2014: global, regional, and subregional levels and trends". *Lancet*. **388** (10041): 258–267. doi:10.1016/S0140-6736(16)30380-4. PMC 5498988. PMID 27179755.
20. "Worldwide, an estimated 25 million unsafe abortions occur each year". *World Health Organization*. 28 September 2017. Archived from the original on 29 September 2017. Retrieved 29 September 2017.
21. Sedgh G, Singh S, Shah IH, Ahman E, Henshaw SK, Bankole A (February 2012). "Induced abortion: incidence and trends worldwide from 1995 to 2008" (PDF). *Lancet*. **379** (9816): 625–632. doi:10.1016/S0140-6736(11)61786-8. PMID 22264435. S2CID 27378192.



22. Sedgh G, Henshaw SK, Singh S, Bankole A, Drescher J (September 2007). "Legal abortion worldwide: incidence and recent trends". *International Family Planning Perspectives*. 33 (3): 106–116. doi:10.1363/3310607. PMID 17938093. Archived from the original on 19 August 2009.
23. "Induced Abortion Worldwide". Guttmacher Institute. 1 March 2018. Archived from the original on 23 February 2020. Retrieved 21 February 2020.
24. Culwell KR, Vekemans M, de Silva U, Hurwitz M, Crane BB (July 2010). "Critical gaps in universal access to reproductive health: contraception and prevention of unsafe abortion". *International Journal of Gynaecology and Obstetrics*. 110 (Suppl): S13–S16. doi:10.1016/j.ijgo.2010.04.003. PMID 20451196. S2CID 40586023.
25. "Unintended Pregnancy and Abortion Worldwide". Guttmacher Institute. 28 May 2020. Archived from the original on 23 February 2020. Retrieved 9 March 2021.
26. Paul M, Lichtenberg ES, Borgatta L, Grimes DA, Stubblefield PG, Creinin MD, Joffe C (2009). "1. Abortion and medicine: A sociopolitical history" (PDF). *Management of Unintended and Abnormal Pregnancy* (1st ed.). Oxford: John Wiley & Sons. ISBN 978-1-4443-1293-5. OL 15895486W. Archived (PDF) from the original on 19 January 2012.
27. Boland R, Katzive L (September 2008). "Developments in laws on induced abortion: 1998–2007". *International Family Planning Perspectives*. 34 (3): 110–120. doi:10.1363/3411008. PMID 18957353. Archived from the original on 7 October 2011.
28. Paola A, Walker R, LaCivita L (2010). Nixon F (ed.). *Medical ethics and humanities*. Sudbury, MA: Jones and Bartlett Publishers. p. 249. ISBN 978-0-7637-6063-2. OL 13764930W. Archived from the original on 6 September 2017.
29. Paola A, Walker R, LaCivita L (2010). Nixon F (ed.). *Medical ethics and humanities*. Sudbury, MA: Jones and Bartlett Publishers. p. 249. ISBN 978-0-7637-6063-2. OL 13764930W. Archived from the original on 6 September 2017.
30. Driscoll M (18 October 2013). "What do 55 million people have in common?". Fox News. Archived from the original on 31 August 2014. Retrieved 2 July 2014.
31. Hansen D (18 March 2014). "Abortion: Murder, or Medical Procedure?". The Huffington Post. Archived from the original on 14 July 2014. Retrieved 2 July 2014.
32. Sifris RN (2013). *Reproductive freedom, torture and international human rights: challenging the masculinisation of torture*. Hoboken, NJ: Taylor & Francis. p. 3. ISBN 978-1-135-11522-7. OCLC 869373168. Archived from the original on 15 October 2015.
33. Swett C (2007). *Unsafe abortion : global and regional estimates of the incidence of unsafe abortion and associated mortality in 2003* (5th ed.). World Health Organization. ISBN 978-92-4-159612-1. Archived from the original on 7 April 2018. Retrieved 24 March 2018.
34. Cheng L (1 November 2008). "Surgical versus medical methods for second-trimester induced abortion". The WHO Reproductive Health Library. World Health Organization. Archived from the original on 1 August 2010. Retrieved 17 June 2011.

35. Finer LB, Frohwirth LF, Dauphinee LA, Singh S, Moore AM (September 2005). "Reasons U.S. women have abortions: quantitative and qualitative perspectives" (PDF). *Perspectives on Sexual and Reproductive Health*. 37 (3): 110–118. doi:10.1111/j.1931-2393.2005.tb00045.x. PMID 16150658. Archived (PDF) from the original on 17 January 2006.
36. Bartlett LA, Berg CJ, Shulman HB, Zane SB, Green CA, Whitehead S, Atrash HK (2004), "Risk factors for legal induced abortion-related mortality in the United States", *Obstetrics & Gynecology*, 103 (4): 729–37, doi:10.1097/01.AOG.0000116260.81570.60, PMID 15051566, S2CID 42597014
37. Roche NE (28 September 2004). "Therapeutic Abortion". *eMedicine*. Archived from the original on 14 December 2004. Retrieved 19 June 2011.
38. "Elective surgery". *Encyclopedia of Surgery*. Archived from the original on 13 November 2012. Retrieved 17 December 2012. "An elective surgery is a planned, non-emergency surgical procedure. It may be either medically required (e.g., cataract surgery), or optional (e.g., breast augmentation or implant) surgery.
39. AnnasGJ, Elias S (2007). "51. Legal and Ethical Issues in Obstetric Practice". In Gabbe SG, Niebyl JR, Simpson JL (eds.). *Obstetrics: Normal and Problem Pregnancies* (5th ed.). Churchill Livingstone. p. 669. ISBN 978-0-443-06930-7.
40. Annas GJ, Elias S (2007). "24. Pregnancy loss". In Gabbe SG, Niebyl JR, Simpson JL (eds.). *Obstetrics: Normal and Problem Pregnancies* (5th ed.). Churchill Livingstone. ISBN 978-0-443-06930-7.
41. Conti JA, Brant AR, Shumaker HD, Reeves MF (December 2016). "Update on abortion policy". *Current Opinion in Obstetrics & Gynecology*. 28 (6): 517–521. doi:10.1097/GCO.0000000000000324. PMID 27805969. S2CID 26052790.
42. New MJ (15 February 2011). "Analyzing the Effect of Anti-Abortion U.S. State Legislation in the Post-Casey Era". *State Politics & Policy Quarterly*. 11 (1): 28–47. doi:10.1177/1532440010387397. S2CID 53314166.
43. "Preventing gender-biased sex selection" (PDF). UNFPA. Archived (PDF) from the original on 11 October 2011. Retrieved 1 November 2011.
44. Restivo SP, ed. (2005). *Science, Technology, and Society: An Encyclopedia*. Oxford University Press. p. 2. ISBN 978-0-19-514193-1. Archived from the original on 15 March 2015.
45. Paul M, Lichtenberg ES, Borgatta L, Grimes DA, Stubblefield PG, Creinin MD, Joffe C (2009). "Abortion and Medicine: A Sociopolitical History" (PDF). *Management of Unintended and Abnormal Pregnancy* (1st ed.). Oxford: John Wiley & Sons. ISBN 978-1-4443-1293-5. OL 15895486W. Archived (PDF) from the original on 19 January 2012.
46. Dannenfelser M (4 November 2015). "The Suffragettes Would Not Agree With Feminists Today on Abortion". *Time*. Archived from the original on 6 November 2015. Retrieved 4 November 2015.

47. Abdeltath R, Arablouei R, Caine J, Kaplan-Levenson L, Wu L, Yvellez V, et al. "Before Roe: The Physicians' Crusade". Throughline. NPR. Retrieved 26 July 2022.