ABORTION AND WOMEN'S HEALTH

An evidence-based review for medical professionals of the impact of abortion on women's physical and mental health.

THIS PUBLICATION SUPPLEMENTS THE 2020 EDITION AND COVERS RESEARCH PUBLISHED SINCE 2019.

By

Dr Greg Pike, Founding Director of the Adelaide Centre for Bioethics and Culture, Australia

About the author

Dr Gregory Pike is the Founding Director of the Adelaide Centre for Bioethics and Culture. Established in 2012, the Centre seeks to describe and promote, in research and education, the ethical principles by which biomedical research, healthcare and technology can be pursued in harmony with core human values.

The Centre adheres to universal human values, human rights, and the laws of humanity, including the inviolable and inalienable right to life of every member of the human family, whatever the age, status or ability of that member, from conception to natural death.

Dr Pike has a background in medical research and served as director of Southern Cross Bioethics Institute for many years. He has also been the Manager of Research Integrity at two Australian Universities. He has served on the National Health and Medical Research Council's Australian Health Ethics Committee and the Federal Government's Gene Technology Ethics and Community Consultative Committee. He has published widely in the medical sciences and in bioethics.

Introduction

This briefing is an update of the document *Abortion and Women's Health*, published by the Society for the Protection of Unborn Children (SPUC) in 2020. That document comprises the evidence to 2019 and is available from SPUC.

This update provides medical practitioners with the latest research about the impact of abortion on the physical and mental health of women. Both documents are intended to assist health professionals with the process of ensuring informed consent for women considering abortion, as well as to assist them in caring for women who may be experiencing adverse health outcomes after abortion.

Certain areas in this field are under-researched, and hence studies since 2019 cover some but not all aspects of the effects of abortion on women's physical and mental health. The topics addressed below are only those where *new* research exists, so it is important to be aware of the large body of research that is addressed in the 2020 publication *Abortion and Women's Health*.

In the past few years there have also been changes in practice regarding how abortions are performed, both in terms of the method and the circumstances under which abortions can occur, changes with the potential to increase the risk of some adverse outcomes.

Statistics on abortion in England and Wales

At the time of writing the latest complete statistics for abortions in England and Wales are for 2021. There were 214,256 abortions in England and Wales in 2021,[1] translating to an age-standardised rate of 18.6 per 1000 women of reproductive age. The number and rate are the highest since the *Abortion Act 1967*. This was also true for 2019[2] and 2020.[3]

Provisional data on abortion in England and Wales published in June 2023, showed that between January and June 2022, 123,219 abortions took place, up 17% on the same period in 2021.[4]

In 2021, the highest rate was for 22-year-olds at 31 per 1000 but the rate has been declining for women under 18 – from 15 to 6.4 per 1000 over the last 10 years. Overall, abortions have been occurring at gradually later ages.

82% of abortions were for single women, and 89% were under 10 weeks' gestation. Medical abortions accounted for 87% of the total, almost double the proportion of 10 years ago.

98% of all abortions took place under ground C of the Abortion Act; that is, that the pregnancy was under 24 weeks gestation, and continuing it would involve greater risk to the woman's physical or mental health than abortion. 99.9% of these abortions were for mental health reasons. 1.6% of abortions were carried out under ground E; that is, that there was a "substantial risk" that the child would be born 'seriously handicapped.'

43% of women having abortions had had one or more abortions before, a proportion that has increased steadily over the past 10 years.

[1] Abortion Statistics England and Wales; 2021 (2023) Department of Health & Social Care. Available from: https://www.gov.uk/government/statistics/abortion-statistics-for-england-and-wales-2021/abortion-statistics-england-and-wales-2021 Accessed 1 Apr 2023.

[2] https://www.gov.uk/government/statistics/abortion-statistics-for-england-and-wales-2019 Accessed 26 June 2023.

[3] https://www.gov.uk/government/statistics/abortion-statistics-for-england-and-wales-2020 Accessed 26 June 2023.

[4] https://www.gov.uk/government/statistics/abortion-statistics-for-england-and-wales-january-to-june-2022 Accessed 26 June 2023.

Statistics on abortion in Scotland

The abortion rate in Scotland rose by almost a fifth (19%) between 2021 and 2022. The rate of abortions in Scotland has increased steadily from 2013 to 2020 with a sharper increase in the last year.

Medical abortions accounted for 98.8% of all abortions in 2022; over half (56.2%) of women took both drugs at home, while 25.5% took the second drug at home. There were just 200 surgical abortions (1.2%) in 2022, compared with 84% in 1992.

98% of abortions in Scotland were performed under Ground C in 2022, which remains constant each year. Ground E, a substantial risk that if the child were born it would suffer from such physical or mental conditions as to be seriously impaired, is the second most frequently recorded statutory ground for abortion.[5]

Medical Abortion

Medical abortion has become the dominant abortion method, and in recent years, initially driven by the Covid pandemic, the delivery paradigm has also changed. Now, with the use of no-tests telemedicine, women are responsible for undertaking their own abortion, for checking all aspects of their eligibility, for ensuring the correct timing and manner of drug taking relative to a self-determined estimate of gestational age (GA), of dealing with passing a visible embryo or fetus, of ensuring they are no longer pregnant, and of knowing how to deal with common side-effects and potential adverse events. Researchers have recently argued for such self-managed abortions to go one step further with abortion pills made available over-the-counter.[6]

Important facts about medical abortion from the perspective of safety and informed consent are the risk of method failure and of adverse events.

Two influential papers from the UK have claimed completion rates (inverse of method failure) for telemedicine abortion of 98.8% for a maximum GA of 10 weeks (Aiken et al. 2021)[7] and 98% for a maximum GA of 12 weeks (Reynolds-Wright et al. 2021).[8] Both have been widely reported as definitive evidence of the effectiveness and safety of no-tests telemedicine abortion. However, these results are completely out of keeping with other telemedicine studies – 86.4%,[9] 76.9%,[10] 87.5%,[11] 89.7%[12] and 86.7%[13] – and this is almost certainly the result of missing data, a fact mostly unacknowledged. In a UK Freedom of Information study conducted at a similar time to the study by Aiken *et al.* 2021, method failure was found to be 5.9% (compared with 1.2% in Aiken *et al.* 2021 study).[14]

[5] https://www.publichealthscotland.scot/publications/termination-of-pregnancy-statistics/termination-of-pregnancy-statistics-year-ending-december-2022/ Accessed 26 June 2023.

[6] Biggs MA *et al.* (2022) Comprehension of an Over-the-Counter Drug Facts Label Prototype for a Mifepristone and Misoprostol Medication Abortion Product. *Obstet & Gynecol* 139(6):1111-1122.

[7] Aiken ARA *et al.* (2021) Effectiveness, safety and acceptability of no-test medical abortion (termination of pregnancy) provided via telemedicine: a national cohort study. *Brit J Obstet & Gynaecol* 128:1464–1474.

[8] Reynolds-Wright JJ *et al.* (2021) Telemedicine medical abortion at home under 12 weeks' gestation: a prospective observational cohort study during the COVID-19 pandemic. *Brit Med J Sexual & Reprod Health* 0:1–6.

[9] Gomperts R *et al.* (2008) Using telemedicine for termination of pregnancy with mifepristone and misoprostol in settings where there is no access to safe services. *Brit J Obstet & Gynaecol* 115:1171–1178.

[10] Gomperts R *et al.* (2014) Provision of medical abortion using telemedicine in Brazil. *Contraception* 89:129–133.

[11] Endler M *et al.* (2019) Safety and acceptability of medical abortion through telemedicine after 9 weeks of gestation: a population-based cohort study. *Brit J Obstet & Gynaecol* 126:609–618.

[12] Meaidi A *et al.* (2019) Risk factors for surgical intervention of early medical abortion. *Am J Obstet & Gynecol* 220:478.e1-15.

[13] Dzuba IG *et al.* (2020) A non-inferiority study of outpatient mifepristone-misoprostol medical abortion at 64–70 days and 71–77 days of gestation. *Contraception* 101:302-308.

[14] Duffy K (2022) FOI Investigation into Medical Abortion Failure. *Percuity* Available from: https://percuity.wordpress.com/foi-investigation-into-medical-abortion-treatment-failure/ [Accessed 12 January 2023].

On the question of at least one reason for missing data, Studnicki et al. recently found that 61% of abortion-related Emergency Room visits within 30 days of induced abortion were miscoded as a spontaneous abortion; that is, a miscarriage.[15] Moreover, if women do not reveal having had a medical abortion, they are at increased risk of a subsequent hospital admission.[16]

Not only are completion rates important – an incomplete abortion most often needing follow up surgery – but other adverse outcomes like infections, transfusions and missed ectopic pregnancies were almost certainly missed in the 2 studies referred to above. Indeed, a parallel study by Aiken *et al.* in the US[17] found transfusion rates higher by a factor of 15 – 0.04% in the UK study and 0.6% in the US study. Similarly, whereas the UK study reported no infections requiring hospital admission, the US study reported that 0.5% of women needed intravenous antibiotics.

The risk of missing an ectopic pregnancy increases when there is no ultrasound in a no-tests telemedicine abortion. The increased risk arises because the side effects of a medical abortion are very similar to those of an ectopic pregnancy, and women who have been told to expect such side effects might not seek attention for an ectopic masked by them, putting them at serious risk. The incidence of missed ectopic pregnancy in medical abortion was recently reported as 0.22%,[18],[19] but such a figure may be an underestimation because of missing data.

In other work that confirms what was found years ago, 38% of women reported experiencing severe pain during their medical abortion, even in the presence of prophylactic analgesia[20] and 40% of women experienced pain that was more than expected.[21]

Mental Health

The relationship between abortion and mental health remains highly contested. One of the most reasonable critiques was produced by Reardon in 2018,[22] which reviewed all research in the field, concluding that abortion is a risk factor for adverse mental health outcomes. A more recent narrative review came to a similar conclusion.[23] Despite this, some influential bodies like the American Psychological Association have made definitive statements claiming that: "Scientific research from around the world shows having an abortion is not linked to mental health issues but restricting access is."[24] Such a claim is seriously misleading, if not simply dishonest.

Of particular importance to medical practitioners caring for their patients presenting for abortion, is that there are some established risk factors for later adverse psychological outcomes. These include prior mental illness, reasons for abortion, economic, social, and religious and cultural factors, each of which may need exploring.

[15] Studnicki J *et al.* (2021a) A Longitudinal Cohort Study of Emergency Room Utilization Following Mifepristone Chemical and Surgical Abortions, 1999–2015. *Health Services Res & Managerial Epidemiol* 8:1-11.

[16] Studnicki J *et al.* (2022a) A Post Hoc Exploratory Analysis: Induced Abortion Complications Mistaken for Miscarriage in the Emergency Room are a Risk Factor for Hospitalization. *Health Services Res & Managerial Epidemiol* 9:1-4.

[17] Aiken ARA *et al.* (2022) Safety and effectiveness of self-managed medication abortion provided using online telemedicine in the United States: A population based study. *Lancet Regional Health – Americas,* 10:100200.

[18] Schummers L *et al.* (2022) Abortion Safety and Use with Normally Prescribed Mifepristone in Canada. *New Engl J Med* 386:57-67.

[19] Upadhyay UD *et al.* (2022) Outcomes and Safety of History-Based Screening for Medication Abortion. A Retrospective Multicenter Cohort Study. *J Am Med Assoc Internal Med* 182(5):482-491.

[20] Arena A *et al.* (2023) How much will it hurt? Factors associated with pain experience in women undergoing medication abortion during the first trimester. *Contraception* 119:109916. Available from: https://doi.org/10.1016/j.contraception.2022.11.007 [Accessed 23 January 2023].

[21] Dzuba IG *et al.* (2020) *Op. Cit.*

[22] Reardon DC (2018) The abortion and mental health controversy: A comprehensive literature review of common ground agreements, disagreements, actionable recommendations, and research opportunities. *SAGE Open Medicine* 6:1-38.

[23] Zareba K *et al.* (2020) Psychological Effects of Abortion. An Updated Narrative Review. *Eastern J Med* 25(3):477-483.

[24] Abrams Z (2023) The facts about abortion and mental health: Scientific research from around the world shows having an abortion is not linked to mental health issues but restricting access is. *American Psychological Association* 53(6). Available from: https://www.apa.org/monitor/2022/09/news-facts-abortion-mental-health [Accessed 6 June 2023]

Importantly, an unwanted abortion from a wanted pregnancy is a risk factor for adverse mental health outcomes, and in recent research, 24% of women described their abortion as unwanted or coerced – 43% accepted the abortion but said it was inconsistent with their values and preferences.[25] This finding was supported by Sullins,[26] who found that about 15% of abortions were from wanted pregnancies, and from the Turnaway Study data, where 38% of aborting women described their pregnancies as wanted or wanted but mistimed.[27]

In a recent study of post-menopausal Korean women, researchers found an elevated risk of suicidal ideation for those who had 3 or more induced abortions, but not for miscarriages, even after controlling for prior mental illness and underlying medical conditions.[28] This study is unusual because the cohort was much older women whose abortions occurred many decades earlier, confirming a concern among researchers that studies assessing mental health soon after abortion may miss adverse mental health outcomes that emerge and persist many years after the abortion.

Somewhat in contrast, researchers studying abortion versus childbirth amongst teenagers found no difference in the incidence of psychiatric diagnoses, although there was a difference for both groups when compared with teenagers who had not had a teenage pregnancy.[29] This might imply that it was teenage pregnancy that was associated with adverse mental health rather than abortion *per se*, although the study did exclude from consideration all teenagers with prior mental illness, a known risk factor for specific post-abortion mental illness.

This risk factor was explored in greater detail in 2021 by Reardon and Craver, who found the risk of psychiatric treatment in the 6 months postpartum was increased if there had been prior mental health treatments, as well as prior induced or natural pregnancy losses.[30] They conclude, "Clinicians should screen for a convergence of a history of MHT (Mental Health Treatment) and prior pregnancy loss when evaluating pregnant women, in order to make appropriate referrals for counseling."

Mortality

Evidence from Finland,[31],[32],[33],[34] Denmark,[35] and elsewhere[36] has established that there is an increased rate of mortality with abortion, whether death occurred by natural causes,

[25] Reardon DC *et al.* (2023) The Effects of Abortion Decision Rightness and Decision type on Women's Satisfaction and Mental Health. Cureus 15(5):e38882. DOI 10.7759/cureus.38882.

[26] Sullins DP (2019) Affective and Substance Abuse Disorders Following Abortion by Pregnancy Intention in the United States : A Longitudinal Cohort Study. *Medicina* 55(11):1-21. doi:10.3390/medicina55110741

[27] Biggs MA *et al.* (2020) Developing and validating the Psychosocial Burden among people Seeking Abortion Scale (PB-SAS). *PLoS One.* 15(12):e0242463.doi:10.1371/journal.pone.0242463.

[28] Wie JH *et al.* (2019) The association between abortion experience and postmenopausal suicidal ideation and mental health: Results from the 5th Korean National Health and Nutrition Examination Survey (KNHANES V). *Taiwanese J Obstet & Gynecol* 58:153-158.

[29] Jalanko E *et al.* (2020) The Risk of Psychiatric Morbidity Following Teenage Induced Abortion and Childbirth-A Longitudinal Study From Finland. *J Adolescent Health 66)3):345-351.*

[30] Reardon DC & Craver C (2021) Effects of Pregnancy Loss on Subsequent Postpartum Mental Health:A Prospective Longitudinal Cohort Study. *Int J Environ Res Publ Health* 18:2179. https://doi.org/10.3390/ijerph18042179.

[31] Gissler M *et al.* (1997) Pregnancy-associated Deaths in Finland 1987-1994 – definition Problems and Benefits of Record Linkage. *Acta Obstet Gynecol Scand* 76(7):651-657.

[32] Gissler M *et al.* (2004) Pregnancy-associated mortality after birth, spontaneous abortion, or induced abortion in Finland, 1987-2000. *Am J Obstet & Gynecol* 190(2):422-7.

[33] Gissler M *et al.* (2015) Decreased suicide rate after induced abortion, after the Current Care Guidelines in Finland 1987 – 2012. *Scand J Public Health* 43:99-101.

[34] Karalis E *et al.* (2016) Decreasing mortality during pregnancy and for a year after while mortality after termination of pregnancy remains high: a population-based register study of pregnancy-associated deaths in Finland 2001-2012. *BJOG* DOI 10.1111/1471-0528.14484.

[35] Coleman PK *et al.* (2012) Reproductive history patterns and long-term mortality rates: a Danish, population-based record linkage study. *Eur J Publ Health* 23(4):579-574.

[36] Reardon DC & Thorp JM (2017) Pregnancy associated death in record linkage studies relative to delivery, termination of pregnancy, and natural losses: A systematic review with a narrative synthesis and meta-analysis. *SAGE Open Medicine* 5:1-17.

accidents, suicide, or homicide. While there has not been any recent research examining the link further, there have been several papers from the US examining maternal mortality in relation to abortion, and explaining why the US data is so deficient as to provide a misleading picture about abortion and mortality.[37]

In their analysis of US metrics and data reporting for maternal mortality, Studnicki *et al.* conclude:

"The current measuring metric and reporting methods for calculating maternal mortality exhibit serious inconsistencies, incomplete reporting, incomplete and inaccurate death certificate completion, absence of comprehensive reporting of abortions and natural fetal losses, limitations in the ability to link a maternal death to the appropriate outcome of the pregnancy, and serious limitations and exclusions in the ICD-CM-10 coding system."[38]

In their narrative review of maternal mortality specifically in relation to induced abortion, Marmion and Skop argue that quality record linkage data simply does not exist in the US as it does in Finland. They also argue that part of the reason is political and that the "politics of pregnancy-related mortality and induced abortion must not be allowed to continue to obstruct root cause analyses of maternal mortality".[39]

Deaths related to mifepristone that made their way to the Adverse Events Reports (AERs) have been recently analysed.[40] However, the authors concluded, "… these unique AERs represent a fraction of the actual adverse events occurring in American women."

Coerced Abortion

The problem of coerced abortion came to the fore in the UK recently with a poll conducted by ComRes for the BBC.[41] In that survey, 15% of *all* women reported pressure to abort a pregnancy. How this figure might relate to the percentage of women who had an abortion and experienced pressure is unclear, although it would undoubtedly be significantly higher than 15% as only about 1 in 4 women have had an abortion. The survey also found that 8% of *all* women reported either physical violence to induce miscarriage or being given an abortion pill without consent.

Coerced abortion is a subset of reproductive coercion and in a recent narrative review it was argued that researchers had neglected the issue in their focus on coercion to become pregnant or maintain a pregnancy.[42] In a qualitative review of women's experiences of reproductive coercion, more had experienced forced abortion than forced pregnancy.[43] In a sample of women who had experienced reproductive coercion, 22% reported forced abortion and 29% reported forced pregnancy or forced continuance of an unwanted/unintended pregnancy.[44] In an analysis of blogs shared by a sample of 98 women, researchers found that "53% reported that the father to their child or other family members (e.g., parents) negated women's own desires to keep the baby."[45]

[37] Reardon DC *et al.* (2021) Overlooked Dangers of Mifepristone, the FDA's Reduced REMS, and Self-Managed Abortion Policies: Unwanted Abortions, Unnecessary Abortions, Unsafe Abortions. *Charlotte Lozier Institute*, American Reports Series, Issue 20. Available from: https://lozierinstitute.org/overlooked-dangers-of-mifepristone-the-fdas-reduced-rems-and-self-managed-abortion-policies-unwanted-abortions-unnecessary-abortions-unsafe-abortions/ [Accessed 2 Feb 2023].

[38] Studnicki J *et al.* (2019) Improving the Metrics and Data Reporting for Maternal Mortality: A Challenge to Public Health Surveillance and Effective Prevention. *Online J Publ Health Informatics* 11(2):e17.

[39] Marmion PJ & Skop I (2020) Induced Abortion and the Increased Risk of Maternal Mortality. *Linacre Quarterly* 87(3):302-310.

[40] Aultman KA *et al.* (2021) Deaths and Severe Adverse Events after the use of Mifepristone as an Abortifacient from September 2000 to February 2019. *Issues in Law and Medicine* 36(1):3-27.

[41] Savanta:ComRes (2022) *Reproductive Coercion Poll – BBC Radio 4 - 8 March 2022*. Available from: https://comresglobal.com/polls/reproductive-coercion-poll-bbc-radio-4-8-march-2022/ [Accessed 16 March 2022].

[42] Pike GK (2022) Coerced abortion – the neglected face of reproductive coercion. *New Bioethics*, doi: 10.1080/20502877.2022.2136026.

[43] Tarzia L *et al.*, (2020) Exploring the gray areas between "stealthing" and reproductive coercion and abuse. *Women and Health* 60(2):1-11.

[44] Cheng Y *et al.* (2021) Outcomes of routine screening for reproductive coercion in a family planning service. *Sexual Health*. Available from: https://doi:10.1071/SH21079 [Accessed 23 November 2021].

[45] Rafferty KA & Longbons T (2020) #AbortionChangesYou: a case study to understand the communicative tensions in women's medication abortion narratives. *Health Communication*, p 4,5. Available from: https://doi.org/10.1080/10410236.2020.1770507 [Accessed 17 April 2022].

In a recent Australian study, more women reported coercion to abort a pregnancy/ experienced violence to induce miscarriage than coercion to become pregnant or continue pregnancy (7.5% versus 6%).[46] 2% experienced both.

In their 2023 study of 1000 US women, 226 of whom had a history of abortion, Reardon and Longbons found that coerced abortion had adverse effects on women's emotional responses and mental health.[47] 61% of women with an abortion history reported "high levels of pressure on at least one scale", a finding that was significantly associated with a range of adverse mental health outcomes. The researchers also found that women with a history of abortion were 4 times more likely to quit the study.

This evidence builds upon earlier research on reproductive coercion, described by some practitioners as a hidden problem,[48] and highlights the need for health professionals to be aware that a significant percentage of the women who present for abortion are likely to be there under pressure from others. Because of this and the established relationship between abortion and intimate partner violence,[49] practitioners will have the opportunity not only to carefully determine whether a woman is able to provide freely informed consent, but also to use the opportunity to offer support and possible referral to social services.

Infertility

A recent 2020 review concluded that there was sufficient evidence, albeit limited, to warrant concern that abortion is a risk factor for infertility, but that more research is badly needed.[50] The review pointed to evidence showing a link between abortion and the increased risk of cervical damage, pelvic inflammatory disease, intrauterine adhesions, and endometrial thinning, each of which has in turn been linked to infertility. Hence there are established grounds for expecting abortion to increase the risk of infertility, even if the evidence base for a direct link is deficient.

Since that review, there have been three publications addressing a link. Two studies of infertile women undergoing IVF in China found that those with a history of abortion achieved lower rates of live birth and higher rates of miscarriage compared to women with no history of abortion.[51],[52] Both studies also found a lowered rate of clinical pregnancy, but the finding was statistically significant in only one. One of the studies also found that the endometrium was thinner for women with a history of abortion, which might go some way to explaining the poorer outcomes.[53]

In a 2022 Ukrainian study of 3825 women, Salmanov *et al.* found that a history of abortion was associated with infertility, most likely caused by a reproductive tract infection acquired from the abortion.[54] The rate of infections after abortion in Ukraine,

[46] Sheeran N *et al.* (2022) Reproductive coercion and abuse among pregnancy counselling clients in Australia: trends and directions. *Reproductive Health* 19(1):170.

[47] Reardon DC & Longbons T (2023) Effects of Pressure to Abort on Women's Emotional Responses and Mental Health. *Cureus* 15(1):e34456. DOI 10.7759/cureus.34456.

[48] Tarzia L *et al.* (2018) "A Huge, Hidden Problem": Australian Health Practitioners' Views and Understandings of Reproductive Coercion. *Qualitative Health Research* 1–13 DOI: 10.1177/1049732318819839.

[49] APallitto CC *et al.* (2013) Intimate partner violence, abortion, and unintended pregnancy: results from the WHO multi-country study on women's health and domestic violence. *International Journal of Gynaecology and Obstetrics* 120(1):3-9.

[50] Pike GK (2020) Abortion and Infertility. *Issues Law Med* 35(2):173.

[51] Zou L *et al.* (2021) The association between previous induced abortion and in vitro fertilization outcomes: A retrospective cohort study in Hefei, China. *Eur J Obstet & Gynecol & Repr Biol* 262:124-128.

[52] Xu S *et al.* (2023) The effect of previous induced abortion history on the assisted reproduction outcomes. *Arch Gynecol Obstet* doi: 10.1007/s00404-023-06928-7.

[53] *Ibid.*

[54] Salmanov AG *et al.* (2022) Infections associated with obstetric and gynecological surgeries as a cause of female infertility in Ukraine. *Wiadomosci Lekarskie* 75(7):1624-1641.

even though abortion is legally available, is high compared to other countries, limiting direct between-country comparison.[55]

A systematic review and meta-analysis of the link between surgical uterine evacuation and infertility is currently underway,[56] and will be relevant for medical as well as surgical abortions, given the prevalence of surgery after failed medical abortion.

Breast Cancer

Research interest in the link between abortion and breast cancer remains strong, but not in Western countries. Since 2019 there have been 5 studies and 4 meta-analyses, undertaken in Iran, Bangladesh, China, Indonesia, and India.

3 of the 5 studies found an increased risk of breast cancer among women having had an induced abortion – 148% increased risk (China)[57], 270% increased risk (Indonesia)[58], increased risk but not quantified (India).[59] Of the other 2 studies, one from China found an increased risk of 35%, but it was not statistically significant and should be followed up; however, the same study did find a 129% increased risk of breast cancer associated with miscarriage.[60] The remaining prospective study from Taiwan did not find any increased risk but was restricted to women less than 45 and with only a 10-13 year follow up period after abortion. The timeframe for cancer development and age after which diagnosis typically occurs both render the study less than satisfactory.[61]

There were 2 meta-analyses from Iran, both limited to Iranian studies. The first found no link overall; however, in a subgroup analysis limited to high quality studies and to regions in the West and East of the country only, an increased risk of between 61% and 106% was found.[62] The second meta-analysis found an 84% increased risk.[63]

The remaining 2 meta-analyses included studies from across the world. The first analysed 19 studies and found a 25% increased risk.[64] The second was limited to nulliparous women using studies with small sample sizes. It found no link.[65]

In summary, 3 of the 5 studies point to abortion as a risk factor for breast cancer, and of the remaining 2, one came close and the other had limitations that would be expected to miss a link. The meta-analyses also lean towards an increased risk.

Brind makes the point that when the incidence of abortion in the population becomes high, studies are less likely to identify a link between abortion and breast cancer.[66] Hence, in his 2017 systematic review of 20 studies exclusively from South Asia, where abortion incidence was relatively low, an increased risk was found (151%).[67]

[55] Salmanov AG *et al.* (2021) Healthcare associated infection after legal induced abortions in Ukraine: results of a multicenter study. *Wiadomosci Lekarskie* 74(7):1559-1565.

[56] Tu P & Pei K (2020) Prior surgical uterine evacuation of pregnancy and infertility: protocol for systematic review and meta-analysis. *BMJ Open* 10:e034837.

[57] Yuan X *et al.* (2019) Induced Abortion, Birth Control Methods, and Breast Cancer Risk: A Case-Control Study in China. *J Epidemiol* 29(5):173-179.

[58] Riva'i SB *et al.* (2021) The Effect of Abortion, Use of Hormonal Contraception, First Age of Pregnancy and Parity on the Incidence of Breast Cancer at the Riau Referral Hospital. *Annals of R.S.C.B.* 25(2): 2010-2018.

[59] Parvathy K (2021) Lifestyle as a risk factor for breast cancer: A case-control study in Chennai, Tamil Nadi, India. *Int J Biol Sci* 12(1): 13-32.

[60] Ye D-M *et al.* (2019) Clinical and epidemiologic factors associated with breast cancer and its subtypes among Northeast Chinese women. *Cancer Med* 8:7431-7445.

[61] Shen *et al* 2023. Abortion and Female Cancer Risks among Women Aged 20 to 45 Years: A 10-Year Longitudinal Population-Based Cohort Study in Taiwan. *Int J Environ Res & Publ Health* 20:3682.

[62] Manouchehri E *et al.* (2022) Menstrual and Reproductive Factors and Risk of Breast Cancer in Iranian Female Population: A Systematic Review and meta-analysis. *Int J Preventive Medicine* 13:26.

[63] Shamshirian A *et al.* (2020) Breast cancer risk factors in Iran: a systematic review & meta-analysis. *Horm Mol Biol Clin Invest* 41(4): 20200021.

[64] Islam MA *et al.* (2022) A Meta-Analysis of Induced Abortion, Alcohol Consumption, and Smoking Triggering Breast Cancer Risk among Women from Developed and Least Developed Countries. *Int J Clin Practice* doi: 10.1155/2022/6700688.

[65] Tong H *et al.* (2020) No association between abortion and risk of breast cancer among nulliparous women. Evidence from a meta-analysis. *Medicine* 99:19.

[66] Brind J (2017) Abortion-Breast Cancer Link (ABC Link): Review of Recent Evidence for Asia. *Issues in Law & Med* 32(2): 325-333.

[67] Brind J *et al.* (2018) Induced Abortion as an Independent Risk Factor for Breast Cancer: A Systematic Review and Meta-analysis of Studies on South Asian Women. *Issues in Law & Med* 32(1): 33-54.

Even though the recent studies cited here tend to show a link between breast cancer and abortion, controversy in the field has resulted in widespread denial of such a link, at least in Western nations.[68]

Regardless of this denial, it is undeniable and widely agreed by researchers and medical authorities that pregnancy to term is protective against breast cancer. This fact has important implications for informed consent. When a health practitioner is faced with a woman considering abortion, informed consent will only be fulfilled if she is told that of the two choices before her – abortion or carrying her pregnancy to term – abortion has the higher risk of breast cancer.

Preterm Birth in a Subsequent Pregnancy

About 8% of births in England and Wales are preterm (<37 weeks; approximately 50,000) making it the "most important single determinant of adverse infant outcome", with an estimated cost to the community of 3.4 billion pounds.[69] There are many risk factors and even small reductions in overall risk could avoid adverse outcomes for thousands of infants and their families every year.

There have been 2 key studies about the link between abortion and preterm births since 2019.

The first was a retrospective cohort study from China of women with a history of induced abortion. It found an 18% increased risk for preterm (<37 weeks), and a 65% increased risk for very preterm (<34 weeks).[70] This translated to an overall preterm rate (<37 weeks) of 6.5% for these women compared with 5.5% for those with no history of abortion.

In a nation-wide registry study from Finland, researchers compared later abortions (>12 weeks) with earlier ones (<12 weeks), finding an increased risk for the former of 5% for preterm (<37 weeks), 27% for very preterm (<32 weeks), and 128% for extremely preterm (<28 weeks).[71] When comparing abortion versus no abortion, risk was only found for late abortions. Preterm risk also increased with the number of prior abortions, strengthening the case for causality.

There has also been a comprehensive systematic review and meta-analysis with data from over 2.5 million pregnancies, exploring the mediating pathway from prior abortion to preterm birth via cervical dysfunction.[72] The authors note that "cervical insufficiency syndrome affects 1% of the obstetric population". Risk of cervical dysfunction was increased by 154% in women with prior induced abortions, whether surgical or medical. For a subgroup having had only surgical abortions, risk was increased by 308%. The authors refer to an earlier study by Anum et al., where risk of cervical incompetence increased with multiple abortions – 1 abortion, 149%; 2 abortions, 266%, 3 abortions 707%; 4 abortions, 1136%.[73] This not only strongly suggests causality but is particularly relevant for the 92,000 women in England and Wales in 2021 whose abortion was at least their second (43% of 214,256).[74]

The authors explore possible reasons for the link, pointing to cervical damage from instrumentation during a surgical abortion. They also note that in an earlier analysis by Lemmers et al., the risk from a surgical

[68] See for example UK Royal College of Obstetricians and Gynaecologists (2023) *Information about abortion care. What are the long-term effects of abortion?* Available from: https://www.rcog.org.uk/for-the-public/browse-all-patient-information-leaflets/information-about-abortion-care/ Accessed 17 May 2023.

[69] Story L *et al.* (2019) Reducing the impact of preterm birth: Preterm birth commissioning in the United Kingdom. *Eur J Obstet Gynecol & Reprod Biol* 3:100018.

[70] Yu J-Y *et al.* (2023) History of induced abortion and the risk of preterm birth: a retrospective cohort study. *J Maternal-Fetal & Neonatal Med* 36:1, 2207114.

[71] Situ KC *et al.* (2020) The duration of gestation at previous induced abortion and its impacts on subsequent births: A nationwide registry-based study. *Acta Obstet Gynecol Scand* 99:651–659.

[72] Brittain JJ *et al.* (2023) Prior Spontaneous or Induced Abortion Is a Risk Factor for Cervical Dysfunction in Pregnant Women: a Systematic Review and Meta-analysis. Reproductive Sciences https://doi.org/10.1007/s43032-023-01170-7

[73] Anum EA *et al.* (2010) Health disparities in risk for cervical insufficiency. *Hum Reprod* 25:2894–900.

[74] Abortion Statistics England and Wales; 2021 (2023) *Op.Cit.*

abortion versus a medical one was higher, but not by much.[75] The relatively high risk with a medical abortion could be explained either by the risk of infection leading to cervical insufficiency or because medical abortion cases that fail then require surgical follow up, which in some cases will lead to cervical damage. Finally, there was also a study of breech presentation that found induced and spontaneous abortions were a risk factor, probably because preterm is associated with breech presentation.[76]

Miscellaneous

In a study of women with a singleton pregnancy in Assisted Reproductive Technology, a history of induced abortion was found to increase the risk of placenta-related diseases by 52.6%.[77]

Contrary to earlier research on abortion and ambivalence, Rowland *et al.* recently found high decisional certainty among women intending to have an abortion, as well as those planning to continue their pregnancy. The authors argue their research "challenges the narrative that abortion is a particularly difficult medical and personal decision."[78] However, this study's different conclusion may be the result of selection bias, because women who are ambivalent about abortion are likely to avoid participation. Uncertainty, and the anxiety that goes with it, may also influence who the researchers approached in the first instance. In a study such as this, researchers can choose who to approach and may respectfully avoid, even subconsciously, engaging with women showing visible signs of distress.

When a first pregnancy ends in abortion, the likelihood that subsequent pregnancies will also end in abortion is increased compared with a first pregnancy that ends in either birth or a natural loss, both of which were more likely to result in a subsequent birth.[79] Compared with women whose first pregnancy ended in birth, those whose first pregnancy ended in abortion had 1.35 times as many pregnancies, 4.31 times as many abortions, 1.53 times as many natural losses, and only 0.52 timeshalf as many births.[80]

In an analysis of the reproductive histories of 4.9 million low-income US women for whom there were 7.8 million pregnancy outcomes – live births, abortions, natural losses, undetermined losses – women who had only abortions and no births were 6.6% of the study population but had 51.5% of all abortions.[81] The authors concluded "Abortion among low-income women with children is exceedingly uncommon, if not rare. The period prevalence of mothers without abortion is 13 times that of mothers with abortion."

Conclusion

This document has sought to examine research over the past 4 years that explores the relationship between abortion and the health and well-being of women.

It has identified numerous findings that point to adverse outcomes of varying prevalence across diverse domains.

Medical practitioners must ensure that the women they see who are considering abortion are provided with all the information they need to make an informed decision. Health professionals will also be aware of the possible link between a woman's physical and psychological health and a prior abortion and be better placed to treat her accordingly.

[75] Lemmers M *et al.* (2016) Dilatation and curettage increases the risk of subsequent preterm birth: a systematic review and meta-analysis. *Hum Reprod* 31:34–45.

[76] Noli SA *et al.* (2019) Preterm Birth, Low Gestational Age, Low Birth Weight, Parity, and Other Determinants of Breech Presentation: Results from a Large Retrospective Population-Based Study. *BioMed Res Int* 2019: Article ID 9581439.

[77] Sun H *et al.* (2023) Association between Abortion History and Perinatal and Neonatal Outcomes of Singleton Pregnancies after Assisted Reproductive Technology. *J Clin Med* 12:1. https://doi.org/10.3390/jcm12010001.

[78] Rowland BB *et al.* (2021) Certainty and intention in pregnancy decision-making: an exploratory study. *Contraception* 103(2):80-85.

[79] Studnicki J *et al.* (2020) Pregnancy Outcome Patterns of Medicaid-Eligible Women, 1999-2014: A National Prospective Longitudinal Study. *Health Services Res & Managerial Epidemiol* 7:1-10.

[80] Studnicki J *et al.* (2022b) The Enduring Association of a First Pregnancy Abortion with Subsequent Pregnancy Outcomes: A Longitudinal Cohort Study. *Health Services Res & Managerial Epidemiol* 9:1-9.

[81] Studnicki J *et al.* (2021b) Estimating the Period Prevalence of Mothers Who Have Abortions: A Population Based Study of Inclusive Pregnancy Outcomes. *Health Services Res & Managerial Epidemiol* 8:1-7.

Published by

SOCIETY FOR THE PROTECTION OF UNBORN CHILDREN
Unit B, 3 Whitacre Mews, Stannary Street, London SE11 4AB, UK
TEL: +44 (0)20 7091 7091 WEB: www.spuc.org.uk

AAWH0623

2023