

2nd Edition
Includes new research up to the end of 2020

Abortion and the Physical & Mental Health of Women

A review of the evidence for health professionals
Dr Gregory Pike: Adelaide Centre for Bioethics and Culture

About the Author

Dr Gregory Pike is Senior Research Fellow of the Bios Centre and 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.

About Family First NZ

Family First NZ is a charitable organisation formed in 2006, and registered as a charity with the Charities Commission. Its purposes and aims are:

- to promote and advance research and policy regarding family and marriage
- to participate in social analysis and debate surrounding issues relating to and affecting the family
- to educate the public in their understanding of the institutional, legal and moral framework that makes a just and democratic society possible
- to produce and publish relevant and stimulating material in newspapers, magazines, and other media relating to issues affecting families
- to speak up about issues relating to families that are in the public domain

For more information and copies of this report, go to www.familyfirst.nz

tel: 09 261 2426

fax: 09 261 2520

email: admin@familyfirst.org.nz

web: www.familyfirst.nz

post: PO Box 276-133, Manukau City 2241, New Zealand

Copyright – This report and all information contained herein is © Family First NZ 2021.

Contents

About the Author	2
About Family First NZ	2
Contents.....	3
Executive Summary	4
Introduction.....	6
Motives Underlying an Abortion Decision	7
General.....	7
Foetal Anomaly	9
Intimate Partner Violence (IPV).....	11
The Foetus.....	12
Abortion and Trafficking/Slavery	12
Physical Effects of Abortion	13
Medical and Surgical Abortion.....	13
Mortality.....	15
Subsequent Pregnancies	17
Breast Cancer.....	19
Infertility	20
Psychological Effects of Abortion.....	21
Reviews.....	22
Comparison Groups.....	23
The Turnaway Study.....	23
Selection Bias and Other Problems.....	24
Emotional Distress.....	25
Depression and Anxiety	26
Post-traumatic Stress.....	28
Substance Abuse and Self-harm.....	30
Mental Health During a Subsequent Pregnancy.....	30
Other Disorders.....	30
Past Psychiatric History.....	31
The Special Case of Abortion for Foetal Abnormality	31
Abortion Statistics for New Zealand	31
Summary	31

Executive Summary

Informed consent is one of the cornerstones of modern medical practice, expressed in numerous national and international codes of ethics, including that of the New Zealand Medical Association. It is just as applicable in relation to evidence about the effect of abortion on women as to any other procedure, and perhaps even more so because of the complex social, legal and ethical aspects of abortion.

This document is for health professionals and reviews international evidence, recently updated to 2020, about the relationship between abortion and the physical and mental health of women. The updated material adds to concerns about women's health in relation to the impact of abortion on overall mortality, preterm births, breast cancer, and adverse mental health outcomes. A new section on infertility and abortion has been added.

Women choose abortion for a wide variety of reasons including relationship problems, pressure from partners and family members, inability to cope, study and career aspirations, financial difficulties, lack of confidence as a mother, lack of community support, foetal disability and risk to her physical health.

Intimate partner violence (IPV) is strongly correlated with abortion, with some research showing a 6-fold increase of IPV in women undergoing abortion compared to those in antenatal care. Abortion has also been linked to international trafficking and slavery of women.

Ambivalence to abortion is common and is linked to some adverse post-abortion outcomes.

The prevalence of foetal abnormalities has increased in many countries and women commonly report a lack of information provided to them about the child's condition, and the options open to them. Moreover, research shows that parents of a child with a disability have more positive attitudes towards disability compared with physicians, many of whom are misinformed.

Globally, medical abortions are rapidly overtaking surgical ones. The process of medical abortion can be traumatic, with high rates of nausea, vomiting, diarrhoea, pain, fever, chills, headache, dizziness, and weakness. At least 5% of medical abortions require surgical intervention, and other complications include infection and heavy bleeding requiring transfusion. The overall incidence of complications after medical abortion is four times that after surgical abortion.

Abortion increases the risk of premature delivery in subsequent pregnancies, either by infection or cervical damage from instrumentation.

Significant inconsistencies exist in research about a possible causative link between abortion and breast cancer. However, it is well established that carrying a pregnancy to term is associated with lower breast cancer risk compared with abortion.

The relationship between abortion and infertility is unsettled, primarily because of limited research, and yet there are reasonable explanatory pathways for a link, as well as evidence that in fact abortion does negatively impact fertility.

Numerous studies have been undertaken about the relationship between abortion and overall mortality. While causal links cannot reliably be made, many studies have identified an increased risk of death in women who have undergone abortion compared with those who have never been pregnant or carried a child to term, whether from natural causes, accidents, homicide, or suicide. Hence, pregnancy and carrying to term confer a protective effect even though the reasons are unclear. At the very least, it is likely that there are common risk factors for increased risk of death and abortion.

The relationship between abortion and mental health has been the subject of intense research interest, yielding results that have not always been consistent. Nevertheless, there is clearly a correlation between abortion and adverse mental health outcomes.

A prominent researcher in the field has argued that *"[there is a] ... truly shameful and systematic bias that permeates the psychology of abortion. Professional organisations in the USA and elsewhere have arrogantly sought to distort the scientific literature and paternalistically deny women the information they deserve to make fully informed healthcare choices and receive necessary mental health counseling when and if an abortion decision proves detrimental."*

Some researchers, including a team from New Zealand, consider it likely that there is a causal link between abortion and harm to a woman's mental health; that is, abortion causes adverse outcomes like depression, anxiety, substance abuse, and post-traumatic stress disorder, rather than there being simply a correlation between the two. Some researchers conclude that 10% of the community mental health burden results from abortion.

Many studies have also identified emotional distress after abortion, including feelings of sadness, loneliness, shame, guilt, grief, doubt, and regret. Some also report positive emotions like relief, happiness, and satisfaction.

When abortion is undertaken for foetal abnormality, the evidence is clearer – abortion results in significant mental harm, including persistent grief, depression and post-traumatic stress.

In conclusion, abortion is associated with a wide range of adverse physical and psychological outcomes, and it is essential that women are made fully aware of all the risks. Presentation for abortion also presents an opportunity to address the risk of coercion and intimate partner violence.



Abortion and Women's Health

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

Introduction

Women considering an abortion must be provided with accurate information about the procedure and its possible effects on their health – not least because it is most often carried out on healthy women.¹ Additionally, there are complex legal, social, ethical and personal questions relating to abortion that do not pertain to other procedures. Moreover, because ambivalence about an abortion decision is common², and ambivalence is related to post-abortion distress^{3,4,5}, the requirement to provide information is made even more acute.

Abortions have been conducted legally in numerous countries for many decades and considerable international research has been undertaken on the physical and psychological impact on women, and also on the circumstances surrounding the decision-making process.



The information that follows comes from this large body of research, and has recently been updated to include studies published up till 2020. Updated material supplements the following: problematic interactions between parents and physicians about abortion for foetal disability; adverse events arising specifically from medical abortion; the link between abortion and increased overall mortality, preterm birth, breast cancer, and adverse mental health outcomes. A new section has been added on the link between abortion and infertility.

It should be noted that abortion research suffers from particular obstacles, one of which is reporting bias. In a prospective study of women aged 15 to 27, for example, the reported rate of abortion was 74% of what would be expected from national data sets.⁶ In a Dutch cohort study, abortion history was clearly underreported, mentioned by only 1.2% of all women giving birth.⁷ Underreporting of abortion leads to an underestimation of its effects.⁸ Other sources of bias, expanded upon in the section on psychological effects below, include the fact that distressed women are often excluded from studies⁹, or refuse to participate. Moreover, many studies of the physical risks of abortion include only healthy women¹⁰, specifically excluding women who are at higher risk of complications.

A significant amount of research begins and ends with the simple assertion that abortion, both medical and surgical, is 'safe'. This is particularly the case for politically driven research - for example to prove that abortion facilities don't need

1 In NZ in 2019, the vast majority (97.2%; 12,498) of abortions were performed under the category 'Danger to Mental Health'. The remainder were performed under categories related to physical health of the mother or disability of the unborn child. 0.17% involved sexual violation. (Stats NZ, 2020, Abortion statistics: Year ended December 2019) See <https://www.stats.govt.nz/information-releases/abortion-statistics-year-ended-december-2019> Accessed 17 Feb 2021.

2 Kero A *et al.* (2001) Legal abortion: a painful necessity. *Social Science and Medicine* 53:1481-1490.

3 Kero A *et al.* (2004) Wellbeing and mental growth – long-term effects of legal abortion. *Social Science and Medicine* 58:2559-2569.

4 Coleman PK *et al.* (2005) The psychology of abortion: a review and suggestions for future research. *Psychology and Health* 20(2):237-271.

5 Coleman PK *et al.* (2017) Women who suffered emotionally from abortion: A qualitative synthesis of their experiences. *J American Physicians & Surgeons* 22(4):113-118.

6 Pedersen W (2008) Abortion and depression: a population-based longitudinal study of young women, *Scand J Public Health* 36:424-428.

7 Scholten BL *et al.* (2013) The influence of pregnancy termination on the outcome of subsequent pregnancies: a retrospective cohort study. *BMJ Open* 3:e002803.

8 *Ibid.*

9 Purcell C *et al.* (2014) Access to and experience of later abortion: accounts from women in Scotland. *Perspectives on Sexual and Reproductive Health* 46(2):101-108.

10 White K *et al.* (2015) Complications from first-trimester aspiration abortion: a systematic review of the literature. *Contraception* 92:422-438.

hospital admitting privileges¹¹ or ambulatory surgical standards¹², or to prove that women do not benefit from pre-abortion counselling.^{13,14} However, risk and safety have subjective elements, and with regard to an abortion procedure, it is the woman herself who will interpret what the risks are and whether she considers abortion 'safe' or not, based on the information provided to her.¹⁵ Importantly, given the ongoing nature of much abortion research, definitive statements about safety are inappropriate.

This review of the evidence informs medical professionals of the issues that need to be raised with patients considering abortion. Medical professionals may consider providing an information sheet for patients.

Motives Underlying an Abortion Decision

General

Medical practitioners need to be aware of the motivating factors that underlie an abortion decision, because there may be a need for referral to support services. For example, since intimate partner violence (IPV) is strongly correlated with abortion, practitioners need to ascertain whether a woman is at risk of physical, emotional or psychological harm.¹⁶ Or a woman may wish to proceed with pregnancy but does not have material support, necessitating referral to social services.

Some motivating factors may have implications for post-abortion effects, specifically mental health effects. For example, if a woman is motivated to have an abortion because of foetal disability, her risk for psychological harm is higher than if motivated by other reasons, like not being able to cope or fear of jeopardising her future.¹⁷

Deciding to have an abortion is far more complex than simply not intending to become pregnant.¹⁸ The concepts of pregnancy wantedness and intendedness are often used by researchers to understand why women might seek abortions. Yet women are ambivalent about pregnancy and abortion in ways that do not fall neatly into the categories some social scientists use for understanding ambivalence.¹⁹ Women rarely see babies themselves as a threat, and instead feel positively towards them. However, it is the related experiences, like the future stress and difficulty of parenthood, financial stress, loss of freedom, ongoing violence or deprivation that women may be hoping to avoid by seeking abortion.²⁰

In most cases, no single factor motivates women to seek abortion. Rather, a variety of factors are involved. These include relationship problems, pressure from partners and family members, study and career aspirations, financial difficulties, lack of confidence as a mother, and lack of community support.^{21,22} Furthermore, reasons differ by country because of cultural context. In Eastern European countries, it is mostly married women with children who have abortions to space or limit births²³; that is, as a means of family planning, whereas in countries like the US and Sweden, predominantly unmarried women have abortions for socioeconomic reasons or because a child would interfere with future opportunities.^{24,25} By far the majority of women cite multiple reasons for their abortion that work together to inform decision making. In addition,

11 A hospital admitting privilege is a requirement for a doctor to have a formal agreement, usually by being a staff member, with a nearby hospital to ensure they can admit a patient for treatment. In the context of abortion, admitting privileges are a legislated requirement in some US States to ensure appropriate care.

12 White K *et al.* (2015) *Op. Cit.*

13 Baron C, Cameron S & Johnstone A (2015) Do women seeking termination of pregnancy need pre-abortion counselling? *J Fam Plann Reprod Health Care* 41:181-185.

14 Brown S (2013) Is counselling necessary? Making the decision to have an abortion. A qualitative interview study. *Eur J Contraception and Reprod Health Care* 18:44-48.

15 The standard for informed consent in the UK was redefined in 2015 by *Montgomery v Lanarkshire*. Deciding about risk disclosure shifted from the "reasonable doctor" to the "reasonable patient". (See <https://www.medicalprotection.org/uk/articles/new-judgment-on-patient-consent> Accessed 28 Nov 2019).

16 Pallitto 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. *Int J Gynecology Obstetrics* 120:3-9.

17 White-Van Mourik MCA *et al.* (1992) The psychosocial sequelae of a second-trimester termination of pregnancy for fetal abnormality. *Prenatal Diagnosis* 12:189-204.

18 Bankole A *et al.* (1998) Reasons why women have induced abortions: evidence from 27 countries. *Int Family Planning Perspectives* 24(3):117-152.

19 Askelson NM *et al.* (2015), "Baby? Baby not?" Exploring women's narratives about ambivalence towards an unintended pregnancy, *Women Health* 55(7):842-858.

20 *Ibid.*

21 Allanson S & Astbury J (1995) The abortion decision: reasons and ambivalence. *J Psychosomatic Obstetrics & Gynecology* 16:123-136.

22 Kirkman M *et al.* (2011) Abortion is a difficult solution to a problem: A discursive analysis of interviews with women considering or undergoing abortion in Australia. *Women's Studies International Forum* 34: 121-129.

23 Pestvenidze E & Stray-Pedersen B (2018) Who obtains abortion in Georgia and why? *Int J Women's Health* 10:733-743.

24 Bankole A *et al.* (1999) Characteristics of Women Who Obtain Induced Abortion: A Worldwide Review. *Int Family Planning Perspect* 25(2):68-77.

25 Chae S *et al.* (2017) Reasons why women have induced abortions: a synthesis of findings from 14 countries. *Contraception* 96:233-241.

some women report multiple disruptive events in their lives at the time of the abortion, including unemployment, separation from a partner, falling behind on rent or mortgage payments, and moving house.²⁶

In a review of several studies, one theme that emerged was concern for the welfare of the child, that the desire to be a good parent constituted a reason to abort. The researchers argued “*women take seriously the responsibilities of motherhood in seeking abortion*”.²⁷ Framing the desire for abortion in this way presents an opportunity for a clinician to address a woman’s desire to be a good parent as being more consistent with giving birth and raising her child.

Health professionals do not always recognise the complexities of women’s lives and are at risk of presuming in favour of abortion. In a study of young pregnant black refugee/migrant women in government care, all women (even those pregnant as a result of rape) chose motherhood instead of abortion despite the difficulties they faced and despite the negative assumptions of healthcare professionals.²⁸ This study highlights the power held by individual healthcare professionals to create a caring environment that is woman-centred and culturally sensitive. Similarly, in a population of formerly homeless young women whose lives stabilised when they became mothers, the researchers concluded that “*having a baby can serve as an asset to street exit for some homeless youth including motivating discontinuation of substance abuse; parenthood can activate hope and motivation; salience is high while the challenges are many; however, social service agencies have an essential and ongoing role to foster and support development for mothers and their children and to assist with avoidance of repetitive cycles of family trauma.*”²⁹

In addition to the notion of pregnancy wantedness, pregnancy intention is likewise a blurry concept. Women do not always formulate pregnancy intentions, and many become pregnant without reference to intention. Pregnancy planning is an unattainable ideal for many women, and seems to be more within the province of privileged women, and/or those with stable relationships and financial security.³⁰ Millions of women around the world will never achieve this, but will have children regardless. Borrero and colleagues show that pregnancy intendedness, happiness about pregnancy, and acceptability of pregnancy are all separate constructs. Many women are happy about pregnancy regardless of their intentions. And some women terminate wanted pregnancies because of financial, relationship or other personal problems. These authors recommend abandoning the term ‘planning’ and instead propose assisting women to prepare for whatever might happen.³¹ Themes from the stories of women aged 18-24 who underwent abortions were described by researchers as follows: “*There is more often than not a story of a boyfriend who was not supportive, or a pregnancy with a person they did not know well involving a ‘poor decision’, and alcohol seemed to be involved quite often. Parents are often not involved. ... to give future children a good life, they had to ‘get through school’ so ‘gave up this one’ ... Some noted that they didn’t want a child brought up in their family or current living situation. Often described was the pain and anguish of being pregnant and very few knowing ... wondering if ‘the right decision was made.’ ...*”³²

The primary reasons change somewhat when an abortion is sought in the second trimester, and include delay due to indecision, poor or absent relationship with a partner³³, late diagnosis of pregnancy, and lack of certainty about being pregnant.^{34,35} The reasons why women find the decision to abort difficult include the humanity of the foetus, their perception of themselves and the impact of their decision upon others.^{36,37}

As noted, ambivalence about an abortion decision is common.^{38,39} And what is of particular concern is the relationship

26 Jones RK *et al.* (2013) More than poverty: disruptive events among women having abortions in the USA. *J Fam Plan Repr Health Care* 39(1):36-43.

27 Kirkman M *et al.* (2009) Reasons women give for abortion: a review of the literature *Arch Womens Ment Health* 12:365-378.

28 Mantovani N & Thomas H (2014) Choosing motherhood: the complexities of pregnancy decision-making among young black women ‘looked after’ by the State. *Midwifery* 30:e72-e78.

29 Ruttan L *et al.* (2012) Does a baby help young women transition out of homelessness? Motivation, coping, and parenting. *J Family Social Work* 15(1):34-49.

30 Stern J *et al.* (2015) Is pregnancy planning associated with background characteristics and pregnancy-planning behaviour? *Acta Obstetrica et Gynecologica Scandinavica* 95:182-189.

31 Borrero S *et al.* (2015) “It just happens”: a qualitative study exploring low-income women’s perspectives on pregnancy intention and planning. *Contraception* 91:150-156.

32 Gray JB (2015) “It has been a long journey from first knowing”: Narratives of unplanned pregnancy. *J Health Comm* 20:736-742.

33 Loeber O & Wijsen C (2008) Factors influencing the percentage of second trimester abortions in the Netherlands. *Reproductive Health Matters* 16 Supplement 31:30-36.

34 Ingham R *et al.* (2008) Reasons for second trimester abortions in England and Wales, *Reproductive Health Matters* 16(31) Supplement 18-29.

35 Purcell C *et al.* (2014) Access to and experience of later abortion: accounts from women in Scotland. *Persp Sexual & Reprod Health* 46(2):101-108.

36 Kirkman M *et al.* (2011) *Op. Cit.*

37 Coleman PK *et al.* (2017) *Op. Cit.*

38 Törnblom M *et al.* (1999) Decision-making about unwanted pregnancy. *Acta Obstetrica et Gynecologica Scandinavica* 78:636-641.

39 Kirkman M *et al.* (2010) Reasons women give for contemplating or undergoing abortion: A qualitative investigation in Victoria, Australia. *Sexual and Reproductive Healthcare* 1:149-155.

between ambivalence and the potential development of long-term post-abortion psychological distress⁴⁰, exacerbated by “impulsive and not fully internalized decisions”⁴¹

There are two other risk factors for later psychological distress of which medical professionals need to be aware. The first of these is moral opposition to abortion. Women sometimes have abortions despite being morally opposed to them^{42,43}, which might indicate the presence of coercive influences in favour of abortion.⁴⁴ Studies have identified more negative post-abortion effects when women are morally opposed to abortion.⁴⁵

The second risk factor is abortion for foetal disability or disease. Abortions of this type lead to more severe consequences not only for the woman but also for her partner. Numerous studies have identified a high incidence of negative emotions⁴⁶, psychological distress⁴⁷, post-traumatic symptoms⁴⁸ and somatic complaints.⁴⁹ Furthermore, women may not be fully aware of the role and consequences of screening for foetal disability. For example, in relation to screening for Down's syndrome, researchers found that only 37% of decisions were informed, 31% did not know that miscarriage was a potential consequence of amniocentesis, and only 62% knew that abortion would be offered if Down's syndrome was identified.⁵⁰

Social support is of vital importance in the context of unexpected pregnancy or when a pregnant woman is unsure if she can cope. In these circumstances, women want nurturing and social network support, emotional support, and direct advice to provide some form of certainty in a difficult, frightening situation.⁵¹

Finally, in a recent study that examined the reasons why women who had considered an abortion then chose not to have one, the majority involved internal personal reasons rather than external ones. These included a desire for the child as well as moral opposition to abortion or past bad experiences of one.⁵²

Foetal Anomaly

For most parents, receiving a prenatal diagnosis of a fetal abnormality is usually the beginning of a highly emotional and morally challenging process requiring assimilation of complex information and contemplation of possibly previously unconsidered concepts such as disability.⁵³

In many countries, there has been an increase in the prevalence of foetal abnormalities, mainly due to increasing maternal age.^{54,55} However, screening rates vary widely globally due to a diversity of social and health policy environments. In 2010, screening rates were at 61% in England, compared with 84% in France, and 26% in the Netherlands.⁵⁶ The public hold mixed views about screening, often expressing concern that widening access would further contribute to a society that devalues the lives of people with a disability, and in actuality deselected them.⁵⁷ With the advent of technological advances

40 Söderberg H *et al.* (1998) Emotional distress following induced abortion. A study of its incidence and determinants among abortees in Malmö, Sweden. *Eur J Obstet & Gynecol & Reprod Biol* 79:173-8.

41 Korenromp MJ *et al.* (2005) Long-term psychological consequences of pregnancy termination for fetal abnormality: a cross-sectional study. *Prenatal Diagnosis* 25:253-260.

42 Allanson S & Astbury J (1995) *Op. Cit.*

43 van Ditzhuijzen J *et al.* (2019) Dimensions of decision difficulty in women's decision-making about abortion: A mixed methods longitudinal study. *PLoS ONE* 14(2):e0212611.

44 Adamczyk A (2008) The effects of religious contextual norms, structural constraints, and personal religiosity on abortion decisions. *Social Science Research* 37:657-672.

45 Rue VM *et al.* (2004) Induced abortion and traumatic stress: a preliminary comparison of American and Russian women. *Medical Science Monitor* 10(10):SR5-16.

46 White-Van Mourik MCA *et al.* (1992) *Op. Cit.*

47 Davies V *et al.* (2005) Psychological outcome in women undergoing termination of pregnancy for ultrasound-detected fetal anomaly in the first and second trimesters: a pilot study. *Ultrasound in Obstet & Gynecol* 25:389-392.

48 Korenromp MJ *et al.* (2005) *Op. Cit.*

49 White-Van Mourik MCA *et al.* (1992) *Op. Cit.*

50 Rowe HJ *et al.* (2006) Are pregnant Australian women well informed about prenatal genetic screening? A systematic investigation using the Multidimensional Measure of Informed Choice. *Aust & NZ J Obstet & Gynaecol* 46:433-439.

51 Gray J (2014) Social support communication in unplanned pregnancy: Support types, messages, sources, and timing. *J Health Comm* 19:1196-1211.

52 Roberts SCM *et al.* (2019) Consideration of and Reasons for Not Obtaining Abortion Among Women Entering Prenatal Care in Southern Louisiana and Baltimore, Maryland. *Sexuality Res & Social Policy* 16:476-487.

53 Hodgson J & McClaren BJ (2018) Parental experiences after prenatal diagnosis of fetal abnormality. *Seminars in Fetal & Neonatal Medicine* 23: 150e154.

54 Loane M *et al.* (2013) Twenty-year trends in the prevalence of Down syndrome and other trisomies in Europe: impact of maternal age and prenatal screening. *Eur J Human Genetics* 21:37-33.

55 Maxwell S *et al.* (2015) Impact of prenatal screening and diagnostic testing on trends in Down syndrome births and terminations in Western Australia 1980-2013. *Prenatal Diagnosis* 35:1324-1330.

56 Vassy C *et al.* (2014) From policy making to service use. Down's syndrome antenatal screening in England, France and the Netherlands. *Social Science & Medicine* 106:67-74.

57 Magelssen *et al.* (2018) Attitudes to prenatal screening among Norwegian citizens: liberality, ambivalence and sensitivity. *BMC Medical Ethics* 19:80.

like non-invasive prenatal testing, more attention needs to be paid to the relevant ethical, psychological and social implications.

A high percentage of pregnancies where a disability is identified may be terminated. For example, an estimated 99% of babies with Down's syndrome are terminated in England and Wales (UK Department of Health statistics on abortion for foetal abnormality may be unreliable, for example reporting only 49% of all terminations for Down's syndrome).⁵⁸ Moreover, lower socioeconomic areas in the UK appear to have lower rates of antenatal detection and also termination of Down's syndrome.⁵⁹ Despite these observations, in a French study over a 9-year period, an increasing proportion of parents had chosen to continue with a pregnancy upon receiving a diagnosis of severe foetal abnormality.⁶⁰

Where prenatal tests are routine, women may feel that they are more or less compulsory, and when they find themselves in a stressful situation a common coping mechanism is to comply with what they believe is the health professional's recommendation.⁶¹ Women's choices also rely heavily on the resources their family can access to cope with a child with a disability. A Norwegian study concluded that while screening technologies increase 'options' they also effectively decrease 'choice'; that is, freely made decisions.⁶²

In a Danish study, more than half of couples who terminated a Down's pregnancy said that if testing had not occurred and the Down's child had been born, they would "love it and fight for it endlessly".⁶³ Almost all of the couples in this study said that testing had "forced them to accept responsibility", one respondent saying, "You kind of become master of life and death."⁶⁴

Recent studies continue to identify problematic interactions between parents and physicians.⁶⁵ Common experiences include being told that their child "was incompatible with life (87%), would live a life of suffering (57%), would be a vegetable (50%), or would ruin their family (23%)".⁶⁶ However, 97% of parents with children who had severe abnormalities describe a "happy child" who had "enriched their family".⁶⁷ Many physicians still seem to have misinformed views about disability, and may have negative and judgmental attitudes towards couples who wish to continue a pregnancy, and as a consequence fail to provide the necessary support.⁶⁸ There is some evidence that genetic counsellors may be better placed to provide accurate information as well as contact with support services.⁶⁹

Factors that increase the chance of termination for sex chromosome abnormality included parents' fear and anxiety about children with disabilities, as well as directive counselling.⁷⁰ Nevertheless, some women are more likely to resist social norms and refuse termination for Down's syndrome. For example, religious women, older women, women with a desire for more children, those pregnant at a later gestation, those with no history of abortion, women who are more familiar with children who have a disability (especially Down's syndrome), women who hold positive attitudes toward individuals with disabilities, women who perceive there exists more social support for parenting a child with a disability, women who have knowledge of available services for people with disabilities, and those who have been provided with counselling by genetic specialists.⁷¹

International research shows that while health professionals tend to value accuracy and early testing for Down's syndrome in prenatal care, women are instead more interested in test safety and comprehensive information.⁷² In a Swedish study,

58 Morris JK *et al.* (2015) Accuracy of reporting abortions with Down syndrome in England and Wales: a data linkage study. *J Publ Health* 38(1):170-174.

59 Budd JLS *et al.* (2015) Socioeconomic inequalities in pregnancy outcome associated with Down syndrome: a population-based study. *Arch Dis Child Fetal Neonatal Ed* 100:F400-F404.

60 Bourdens M *et al.* (2017) Severe Fetal Abnormality and Outcomes of Continued Pregnancies: A French Multicenter Retrospective Study. *Matern Child Health J* 21:1901-1910.

61 Aune I & Moller A (2012) 'I want a choice, but I don't want to decide' - a qualitative study of pregnant women's experiences regarding early ultrasound risk assessment for chromosomal anomalies. *Midwifery* 28:14-23.

62 *Ibid.*

63 Lou S *et al.* (2018) Termination of pregnancy following a prenatal diagnosis of Down syndrome: A qualitative study of the decision-making process of pregnant couples. *Acta Obstet Gynecol Scand* 97:1228-1236.

64 *Ibid.*

65 Holt LE (2017) Parental opinions about prenatal genetic screening and selective abortion for Down Syndrome. *Electronic Theses and Dissertations*. Paper 2675. See <https://doi.org/10.18297/etd/2675> Accessed 20 June 2020.

66 Janvier A *et al.* (2012) The Experience of Families With Children With Trisomy 13 and 18 in Social Networks. *Pediatrics* 130(2):293-298.

67 *Ibid.*

68 Rubeis G & Steger F (2019) A burden from birth? Non-invasive prenatal testing and the stigmatization of people with disabilities. *Bioethics* 33:91-97.

69 Wallace SE *et al.* (2018) Parent Perspectives of Support Received from Physicians and/or Genetic Counselors Following a Decision to Continue a Pregnancy with a Prenatal Diagnosis of Trisomy 13/18. *J Genet Counsel* 27:656-664.

70 Jeon KC *et al.* (2012) Decision to abort after a prenatal diagnosis of sex chromosome abnormality: a systematic review of the literature. *Genetics in Medicine* 14(1):27-38.

71 Choi H *et al.* (2012) Decision making following a prenatal diagnosis of Down Syndrome: An integrative review. *J Midwifery & Women's Health* 57:156-164.

72 Hill M *et al.* (2016) Preferences for prenatal tests for Down syndrome: an international comparison of the views of pregnant women and health

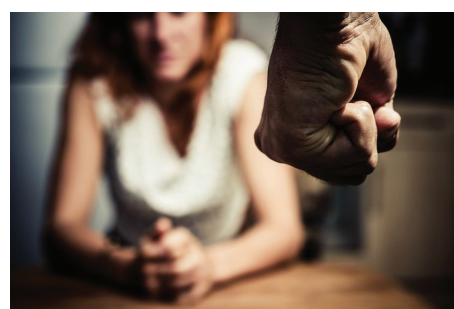
25.6% of women who opted for termination for foetal malformation reported that the “information provided was not adequate to enable a decision”. These women were uncertain of the future prognosis for the child and unsure of the implications of the anomaly, yet they terminated their pregnancies.⁷³ A Brazilian study similarly found that women did not always fully understand the malformation and needed greater attention by health professionals than they received. Yet, “when the option of continuing the pregnancy is chosen, a feeling of intense hope is observed, a feeling that change might be possible.”⁷⁴ A recent study of 45 women receiving prenatal testing in London found that while they understood the testing, women had a poor understanding of Down’s syndrome, no knowledge of Edwards and Patau syndromes, and few knew someone with these syndromes.⁷⁵

Following a decision to terminate a pregnancy with a diagnosis of foetal abnormality couples can experience grief and ongoing mental health problems, which has given rise to the development of specific therapeutic interventions.⁷⁶

Pregnant women and their families need accurate, up-to-date information about the care practices, quality of life, and resources available for individuals with disabilities and their families. Healthcare providers need to be aware that their own attitudes toward people with disabilities will have an influence on their ability to provide this information.⁷⁷

Intimate Partner Violence (IPV)

IPV is a strong risk factor for abortion all over the world.^{78,79,80,81,82,83,84} A WHO multi-country study of women’s health and domestic violence found that women with a history of IPV had increased odds of unintended pregnancy and almost three times the risk of abortion. In a study of London clinics, there was a six times higher rate of IPV in women undergoing abortion compared with women receiving antenatal care.⁸⁵



Women who had experienced IPV were also more likely to experience suicidal ideation if they had a history of perinatal loss, whether it was abortion, stillbirth or miscarriage.⁸⁶ Furthermore, the association between IPV and repeat abortion indicates that there is often a repetitive cycle of abuse and pregnancy.⁸⁷

In the USA, a survey of 4245 women identified the impact of gender-based violence across their life-course and how it impacted upon their pregnancy outcomes. Child sexual abuse was significantly related to teenage dating violence, which in turn was strongly linked to adult IPV. As women’s experiences of gender-based violence increased, so did their odds of experiencing an abortion.⁸⁸ Coercion and pressure are well-established risk factors for women’s psychological adjustment to abortion.^{89,90}

professionals. *Eur J Human Genetics* 24:968-975.

73 Asplin N *et al.* (2013) Pregnant women’s perspectives on decision-making when a fetal malformation is detected by ultrasound examination. *Sex Reprod Healthcare* 4:79-84.

74 Benute GR *et al.* (2012) Feelings of women regarding end-of-life decision making after ultrasound diagnosis of a lethal fetal malformation. *Midwifery* 28:472-475.

75 Lewis C *et al.* (2016) A qualitative study looking at informed choice in the context of non-invasive prenatal testing for aneuploidy. *Prenatal Diagnosis* 36:875-881.

76 Rocha J *et al.* (2018) Women generating narratives after an unwanted prenatal diagnosis result: randomized controlled trial. *Arch Women’s Mental Health* 21:453-459.

77 Choi H *et al.* (2012) *Op. Cit.*

78 Pallitto 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. *Int J Gynecology Obstetrics* 120:3-9.

79 Hedin LW & Janson PO (2000) Domestic violence during pregnancy: the prevalence of physical injuries, substance use, abortions and miscarriages. *Acta Obstetrica et Gynecologica Scandinavica* 79:625-630.

80 Taft AJ & Watson LF (2007) Termination of pregnancy: associations with partner violence and other factors in a national cohort of young Australian women. *Aust NZ J Public Health* 31(2):135-142.

81 Coker AL (2007) Does physical intimate partner violence affect sexual health? A systematic review. *Trauma, Violence, & Abuse* 8:149-177.

82 Fanslow F *et al.* (2008) Pregnancy outcomes and intimate partner violence in New Zealand. *Aust NZ J Obstet & Gynaecol* 48:391-397.

83 Coleman PK *et al.* (2009) Predictors and Correlates of Abortion in the Fragile Families and Well-Being Study: Paternal Behavior, Substance Use, and Partner Violence. *Int J Mental Health & Addiction* 7(3):405-422.

84 Silverman JG *et al.* (2010) Male perpetration of intimate partner violence and involvement in abortions and abortion-related conflict. *Am J Public Health* 100 (8):1415-1417.

85 Wokoma TT *et al.* (2014) A comparative study of the prevalence of domestic violence in women requesting a termination of pregnancy and those attending an antenatal clinic. *BJOG* 121:627-633.

86 Gulliver P & Fanslow J (2013) Exploring risk factors for suicidal ideation in a population-based sample of New Zealand women who have experienced intimate partner violence. *Aust NZ J Public Health* 37(6):527-33.

87 Hall M *et al.* (2014) Associations between intimate partner violence and termination of pregnancy: A systematic review and meta-analysis. *PLOS Medicine* 11(1):e1001581.

88 McCloskey LA (2016) The effects of gender-based violence on women’s unwanted pregnancy and abortion. *Yale J Biol & Med* 89:153-159.

89 Coyle CT *et al.* (2015) The relationship of abortion and violence against women: Violence prevention strategies and research needs. *Issues in Law & Medicine* 30(2):111-127.

90 Coleman PK *et al.* (2017) *Op. Cit.*

The relationship between domestic violence and abortion appears to operate in two ways. First, a context of violence leads to coerced abortion, and second, abortion itself then appears to promote further violence.⁹¹ There was no relationship between domestic violence and miscarriage.⁹²

Healthcare professionals should know which organisations and advocates are available to provide support in the clinical setting and in the community; for example social workers, victim advocates, domestic violence agencies, shelters, rape crisis centres, and child protective services.⁹³ Guidelines from some peak bodies (eg the Royal College of Obstetricians and Gynaecologists), recommend that healthcare services should identify issues such as IPV among women seeking abortion and refer them to appropriate support services. A recent UK study found that women were positive about the provision of domestic violence support services in the context of attendance at an abortion clinic.⁹⁴ More research is needed to confirm whether screening increases uptake of assistance, reduces harm, and influences an abortion decision.⁹⁵

The Foetus

The developmental age of the embryo/foetus at the time of abortion may be an important consideration for some women. A woman may want to know the size and characteristics of the embryo/foetus before coming to a final decision. In that case, accurate information based on the best scientific and diagnostic evidence needs to be made available. Later gestational stages may attract a higher degree of moral ambivalence, which might increase the risk of post-abortion effects. Furthermore, since different procedures may be used for different gestational ages, what method will be used is also important, along with sufficient detail.

It is possible that some women may ask for information about foetal sentience and foetal pain. Whilst this is a controversial issue and not well understood, it is likely, depending upon developmental age, that the foetus will experience pain.⁹⁶ The presence of the nervous system, even at an early stage, is sufficient for this possibility to be seriously considered. Some researchers believe that pain sensation may occur before the 10th week of gestation (and possibly as early as the 6-7th weeks), due to maturation of particular neural structures as well as the lack of pain inhibition mechanisms.⁹⁷ The most recent analysis summarises the neurophysiological evidence to date that shows the development of the cortex is not necessary for the experience of pain, and that by 12 weeks the neural structures are in place for pain to be experienced.⁹⁸ It may be surmised that because these structures have completed development by 12 weeks, the experience of pain even before 12 weeks gestation is possible.

Abortion and Trafficking/Slavery

Abortion plays a part in the abuse and control of women and girls who are trafficked, not only for sex but also those exploited in labour such as agriculture, fishing, textile, manufacturing, mining, domestic servitude, and 'wives' even in the UK.⁹⁹ While trafficking is sometimes seen as a problem for Africa, Eastern Europe and Asia, in fact it is common in many western democratic nations like the US. Human sex trafficking/slavery alone is big business and the fastest growing criminal enterprise worldwide.¹⁰⁰ The risk of sexual violence is high for these women and girls, beginning at the point where they agree to or are forced to travel. Forced abortion is common for those trafficked into prostitution, and often provided by untrained or poorly qualified practitioners in unsafe settings. Nevertheless, in a study of women rescued from sex trafficking in the US, nearly a third had abortions committed by Planned Parenthood.¹⁰¹ Planned Parenthood has been exposed as complicit in sex trafficking by knowingly performing abortions for victims of sex trafficking and failing to act or deliberately hiding the events.¹⁰² Other than abortion, trafficked women rarely have access to health care.

91 Stephenson R *et al.* (2016) Domestic Violence and Abortion Among Rural Women in Four Indian States. *Violence Against Women* 22(13):1642-1658.
92 *Ibid.*

93 Miller E & Silverman JG (2010) Reproductive coercion and partner violence: implications for clinical assessment of unintended pregnancy. *Expert Rev Obstet & Gynecol* 5(5):511.

94 Motta S *et al.* (2015) Domestic violence in a UK abortion clinic: anonymous cross-sectional prevalence survey. *J Fam Plann Reprod Health Care* 41:128-133

95 O'Doherty L *et al.* (2015) Screening women for intimate partner violence in healthcare settings. *Cochrane Database Syst Rev* 22(7):CD007007.

96 McCullagh P (1996) *Foetal Sentience*, London, All-Party Parliamentary Pro-Life Group.

97 Sekulic S *et al.* (2016) Appearance of fetal pain could be associated with maturation of the mesodiencephalic structures. *J Pain Res* 9:1031-1038.

98 Derbyshire SWG & Bockmann JC (2020) Reconsidering fetal pain. *J Med Ethics* 46:3-6.

99 Zimmerman C *et al.* (2011) Human trafficking and health: A conceptual model to inform policy, intervention and research. *Social Science & Medicine* 73:327-335.

100 Walker-Rodriguez A & Hill R (2011) Human sex trafficking. *FBI Law Enforcement Bulletin* See <https://leb.fbi.gov/articles/featured-articles/human-sex-trafficking> Accessed 25 Jun 2020.

101 Lederer LJ & Wetzel CA (2014) The health consequences of sex trafficking and their implications for identifying victims in healthcare facilities. *Annals of Health Law* 23:61-91.

102 Grossu AO & Maguire S (2017) The Link Between Pornography, Sex Trafficking, and Abortion. Issues Analysis, Family Research Council. See <https://>

In a study of 107 survivors of sex trafficking in the USA, women reported a total of 114 abortions, many forced.¹⁰³ Over half the women said that the doctor performing the abortion was aware she was on the street. One woman's abortions were performed by a doctor who was also her client. Abortion is one of many severe physical and psychological health consequences that trafficked women experience. Healthcare professionals must seek training and protocols to identify and assist these women, who at present are often going unnoticed. Women seeking abortion represents one of the best opportunities for intervention.

Physical Effects of Abortion

Medical and Surgical Abortion

Globally, medical abortion is rapidly becoming more common than surgical abortion. For example, in 2014, medical abortions overtook surgical abortions in England and Wales for the first time¹⁰⁴, and in 2018, 71% of all abortions were medically induced.¹⁰⁵ New Zealand appears to be an exception with only 28% of abortions in 2019 being medical¹⁰⁶, nevertheless more than doubling from 13.4% in 2015.¹⁰⁷



The experience of medical abortion (first trimester) involves high rates of the following: nausea (30.7 - 69.2%), vomiting (22.3 - 34.1%), diarrhoea (31.8 - 58.6%), pain (91.6%), fever (21.3 - 44.3%), chills (36.5 - 44.3%), headache (12.3 - 42%), dizziness (13.1 - 45.5%), and weakness (19.2 - 56.6%).¹⁰⁸ 62% of women taking Mifepristone (RU486)/Misoprostol and 48% of those taking Misoprostol alone experienced pain they described as severe.¹⁰⁹

The most common clinically significant adverse events for all types of abortion, many requiring hospital admission, include heavy bleeding and blood transfusion, infection requiring IV antibiotics, incomplete abortion requiring surgical treatment, uterine perforation, and rarely, death. Ongoing intrauterine pregnancy after medical abortion is also a clinically significant outcome, in which case the teratogenic effects of various medications can lead to malformations.¹¹⁰

In a Swedish study, the complication rate for all abortions was 6.7%, and for medical abortions below 12 weeks gestation, the rate increased from 4.2% in 2008 to 8.2% in 2015.¹¹¹ The abortion complication rate also increases rapidly with each week of gestation, one study finding a 38% increase for each week.¹¹² Recent research shows that 16.3% of women who had medical abortions at 57-63 days and 20.5% of those who had medical abortions at 64-76 days made an unscheduled return visit because of concerns about complications.¹¹³ For 77-100 days the figure rose to 22.5%.¹¹⁴ Nevertheless, abortion providers and many researchers describe abortion in simplistic terms as safe and effective.^{115,116} It should be noted that some patients may not return with complaints, and abortion clinic staff may be motivated to conceal poor outcomes.¹¹⁷

www.frc.org/porntraffickingabortion Accessed 25 June 2020.

103 Lederer LJ & Wetzel CA (2014) *Op. Cit.*

104 Kmietowicz Z (2015) Medical abortions more common than surgery for first time in 2014 in England and Wales. *BMJ* 350:h3177.

105 Abortion Statistics England and Wales: 2019 (2020) Department of Health & Social Care. See https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/891405/abortion-statistics-commentary-2019.pdf Accessed 16 Sep 2020.

106 Stats NZ (2020) Abortion statistics: Year ended December 2019, *Op. Cit.*

107 Report of the Abortion Supervisory Committee (2016) p 24, Table 9.1. See <https://www.justice.govt.nz/assets/Documents/Publications/asc-annual-report-2016.pdf> Accessed 6 Jan 2021.

108 Product monograph including patient medication information. Mifegymiso. Revised October 21, 2016. See https://pdf.hres.ca/dpd_pm/00036826.PDF Accessed 22 May 2018.

109 Dahiya K *et al.* (2012) Efficacy and safety of mifepristone and buccal misoprostol versus buccal misoprostol alone for medical abortion. *Arch Gynecol Obstet* 285:1055-1058.

110 Fiala C & Gemzell-Danielsson K (2006) Review of medical abortion using mifepristone in combination with a prostaglandin analogue. *Contraception* 74:66-86.

111 Carlsson I *et al.* (2018) Complications related to induced abortion: a combined retrospective and longitudinal follow-up study. *BMC Women's Health* 18:158.

112 Bartlett LA *et al.* (2004) Risk factors for legal induced abortion-related mortality in the United States. *Obstet Gynecol* 103:729-737.

113 Larsson A & Ronnberg A-KM (2019) Expanding a woman's options to include home use of misoprostol for medical abortion up until 76 days: an observational study of efficacy and safety. *Acta Obstet Gynecol Scand.* 98:747-752.

114 Endler M *et al.* (2018) Safety and acceptability of medical abortion through telemedicine after 9 weeks of gestation: a population-based cohort study. *BJOG* 126:609-618.

115 Cleland K *et al.* (2013) Significant adverse events and outcomes after medical abortion. *Obstet Gynecol* 121(1):166-171.

116 Trussell J *et al.* (2014) Reduction in infection-related mortality since modifications in the regimen of medical abortion. *Contraception* 89(3):193-196.

117 Cleland K *et al.* (2013) *Op. Cit.*

Bleeding is a requirement of medical abortion. A large Finnish register study found that 15.6% of women who had a medical abortion accessed hospital care for bleeding, one fifth of whom required intervention.¹¹⁸ In a separate study, 74% of women described their bleeding as 'heavy', 53% said it lasted longer than expected, and 41% said the blood loss was more than expected.¹¹⁹ Blood transfusion rates after medical abortion vary from study to study, and were up to 0.6% for gestations between 57 and 63 days.¹²⁰

A 2013 systematic review of the most common early medical abortion regimen found that the rate of method failure was 4.8%, the hospitalisation rate was 0.3%, and the ongoing pregnancy rate was 1.1%.¹²¹ A 2015 systematic review, co-authored by a Danco¹²² consultant (Danco manufactures mifepristone), concluded that outpatient medical abortion regimens up to 70 days gestation are highly effective and severe adverse events are uncommon¹²³. However, a recent study found that 6.2% of early medical abortions required surgical intervention.¹²⁴

There is a risk of infection after surgical and medical abortion. In a review of the prevalence of infection across a large number of medical abortion studies, Shannon et al. arrived at a figure of 0.92%.¹²⁵ Reported rates of actual infections after surgical abortions range from 0.1% to 4.7%.¹²⁶ Importantly, across surgical and medical abortions, even after screening and using prophylactic antibiotics, 1.4% of women still develop a post-abortion infection. This suggests the presence of poorly understood infections arising from abortion. In the USA alone, the FDA's post-marketing adverse events summary through to the end of 2017 cites 22 deaths associated with Mifepristone.¹²⁷ 8 of these were confirmed as associated with sepsis, the remaining deaths being attributed to multiple causes in association with Mifepristone. The FDA notes that these deaths could not be causally attributed to Mifepristone.

Actual death rate as an immediate complication of abortion is unreliable for a range of reasons, but some studies suggest figures of 0.009% for medical abortion and 0.02% for surgical abortion.¹²⁸ Given the poor adverse events reporting system in the US, all complications after abortion are likely to be underestimated. In particular, some authors note, "AERs [adverse events reports] relied upon by the FDA to monitor mifepristone's post-marketing safety are grossly deficient due to extremely poor quality".¹²⁹

Despite legitimate concerns about the safety of abortion, there are increasing calls to allow midwives, nurses, and physician assistants to provide medical abortion to expand access, as many doctors do not want to be involved in abortion practice.¹³⁰

Why are women increasingly choosing medical abortion? Qualitative interviews with 22 women in the USA who were preparing to undergo a medical abortion identified five themes that underpinned their choice.¹³¹ A common reason was to avoid surgery, referring to aspiration abortion. Most aspiration abortions are performed under local anaesthetic, and women had adverse reactions to hearing the electric pump, and experiencing the suction. They saw medical abortion as a more 'natural' process: "It just seems a little more human, a little more natural than the surgical track which seems so archaic." "... less invasive." "The medical abortion seemed more like a process that my body would know how to do ...". Women perceived medical abortion as similar to a commonly occurring miscarriage, giving it a sense of normalcy and making abortion more easy to justify.¹³² At the same time, women spoke of respecting the baby, not wanting to cause suffering, the vast majority using the term 'baby' or 'child'. Women also chose medical abortion to fit with schedules and commitments, or to avoid appointments at the clinic.¹³³

118 Niinimäki M *et al.* (2009) Immediate Complications After Medical Compared With Surgical Termination of Pregnancy. *Obstet Gynecol* 114:795-804.
119 Harper C *et al.* (1998) Blood loss with mifepristone-misoprostol abortion: measures from a trial in China, Cuba and India. *Int J Gynecol & Obstet* 63:39-49.

120 Winikoff B *et al.* (2012) Extending Outpatient Medical Abortion Services Through 70 Days of Gestational Age. *Obstet Gynecol* 120:1070-1076.

121 Raymond EG *et al.* (2013) First-trimester medical abortion with mifepristone 200mg and misoprostol: a systematic review. *Contraception* 87:26-37.

122 Danco distribute the abortion drug Mifeprex in the US.

123 Chen MJ & Creinin MD (2015) Mifepristone with buccal misoprostol for medical abortion: a systematic review. *Obstet & Gynecol* 126(1):12-21.

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

125 Shannon C *et al.* (2004) Infection after medical abortion: a review of the literature. *Contraception* 70:183-190.

126 Cited by Kruse B *et al.* (2000) Management of side effects and complications in medical abortion. *Am J Obstet Gynecol* 183:S65-S75.

127 Mifepristone U.S. Post-Marketing Adverse Events Summary through 12/31/2017. Accessed 29-Aug 2018. See <https://www.fda.gov/downloads/Drugs/DrugSafety/PostmarketDrugSafetyInformationforPatientsandProviders/UCM603000.pdf>

128 Niinimäki M *et al.* (2009) *Op. Cit.*

129 Gary MM & Harrison DJ (2006) Analysis of Severe Adverse Events Related to the Use of Mifepristone as an Abortifacient. *Annals of Pharmacotherapy* 40(2):191-197.

130 Foster AM *et al.* (2015) From qualified physician to licensed health care professional: the time has come to change mifepristone's label. *Contraception* 92:200-202.

131 Cappiello J *et al.* (2014) Women's experience of decision-making with medication abortion. *MCN Am J Matern Child Nursing* 39(5):325-330.

132 Newton D *et al.* (2016) How do women seeking abortion choose between surgical and medical abortion? Perspectives from abortion service providers. *Aust NZ J Obst Gynaecol* 56: 523-529.

133 Akin A *et al.* (2004) Results and lessons learned from a small medical abortion clinical study in Turkey. *Contraception* 70:401-406.

These findings may imply that surgical abortion is known by women to be traumatic, leading to a preference for medical abortion. However, medical abortion requires more patient participation than a surgical abortion, and women are more aware of the physical aspects of the process.^{134,135} Women report a preference for home management of abortion and yet responses have included the following: “*agony*”; “*such a physical and emotional process*”; “*day was absolutely horrific*”; “*I bled so much ... it’s pouring out*”; “*in hindsight I wished I hadn’t looked but I did, and that was probably the most traumatic thing I’ve ever seen or done*”; “*if [friend had] been there and seen me screaming like that ...*”¹³⁶

Mortality

While it is crucial to understand how many women die directly from their abortion procedures, it is also important to find out whether women are more likely to die from any cause after abortion versus after giving birth, and not necessarily from gynaecological causes. The term ‘pregnancy-associated death’ is defined as ‘the death of a woman while pregnant or within 1 year of termination of pregnancy, irrespective of the cause of death or the site of pregnancy.’¹³⁷ This reflects the fact that reproductive events have a profound impact upon women’s lives, reverberating beyond the physical and into their psychological health and well-being.

Analyses of mortality data are complicated by potential confounders and mediating factors such as physical and mental health, previous and subsequent pregnancies, relationship status, socioeconomic status, genetic factors, behavioural factors, and life experiences. Nevertheless, in a recent systematic review and meta-analysis, researchers concluded “*women experiencing a pregnancy loss [termination of pregnancy, miscarriage or failed pregnancy] are over twice as likely to die compared to women giving birth.*”¹³⁸

When deaths from all causes are examined in the first year following an abortion, several large studies have identified an increased risk compared either to giving birth or never being pregnant.^{139,140,141} Although causality could not be proven, there are grounds for it because there is a dose effect whereby women who have had more abortions are at even greater risk of mortality. Moreover, most deaths are likely related to adverse mental health outcomes via increased suicides, accidents and homicide from increased risk-taking behaviours¹⁴², and “*...self-aware, introspective women specifically attribute the onset or worsening of substance use, depression, flashbacks, sexual dysfunction, self-destructive tendencies and other issues to their pregnancy loss experiences ... self-assessments that are further validated by therapists treating women for pregnancy loss related issues.*”¹⁴³

Some of the best studies have come from Finland. In a 1997 study, compared to women who gave birth, women who had an abortion had a 63% elevated risk of death from natural causes, a 324% increased risk of death from accidents, a 546% increased risk of death by suicide, and a 1297% increased risk of death by homicide.¹⁴⁴

A separate Finnish register-based study showed that the risk of suicide was decreased after birth (5.9 per 100000) compared to non-pregnant women (11.3 per 100000), while suicide risk was increased after miscarriage (18.1 per 100000) and much more so after induced abortion (34.7 per 100000 induced abortions). Women aged less than 25 were most at risk. The risks for accidental death and homicide were also higher after abortion.¹⁴⁵

In yet another Finnish register study, for the years 2001-2012, the mortality rate for suicide after abortion was 21.8/100000 women, while the rate was 3.3/100000 for pregnancies ending in birth, 11.4/100000 after miscarriage, and 10.2/100000

134 Bartz D & Goldberg A (2009) Medication Abortion. *Clin Obstet Gynecol* 52(2):140-150.

135 Kelly T *et al.* (2010) Comparing medical versus surgical termination of pregnancy at 13-20 weeks gestation: a randomised controlled trial. *Brit J Obstet & Gynaecol* 117:1512-1520.

136 *Ibid.*

137 World Health Organization (2004) *Definitions of Maternal Death. Beyond the numbers: Reviewing maternal deaths and complications to make pregnancy safer*, Geneva, 2004.

138 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.

139 Reardon DC *et al.* (2002) Deaths associated with pregnancy outcome: a record linkage study of low income women. *Southern Medical J* 95(8):834-841.

140 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.

141 Gissler M *et al.* (1996) Suicides after pregnancy in Finland, 1987-94: register linkage study. *Brit Med J* 313:1431-4.

142 Jalanko E *et al.* (2017) Increased risk of premature death following teenage abortion and childbirth - a longitudinal cohort study. *Eur J Publ Health* 27(5):845-849.

143 Reardon DC & Thorp JM (2017) *Op. Cit.*

144 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.

145 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.

among non-pregnant women.¹⁴⁶ This study was designed to follow up the findings from a 2004 Finnish study in which the respective mortality rates (by suicide) for 1987-2000 were 33.9/100000 after abortion, 5.8/100000 after birth, 16.5/100000 after miscarriage, and 12.0/100000 for non-pregnant women.¹⁴⁷ Rates across all categories had improved with time, but remained far worse after abortion than after other pregnancy outcomes or no pregnancy.

A population register based study in Denmark over the years 1980 – 2004 found abortion was associated with significantly higher death rates up to ten years after abortion compared with women who gave birth. Women had an 80% increased risk of death after abortion compared to after birth within the first year. The same dataset revealed a dose effect of birth and pregnancy loss; that is, increasing numbers of births decreased mortality risks, while more perinatal losses were associated with greater risks of death.¹⁴⁸

In stark contrast to all of the above studies, a 2012 paper by abortion providers Raymond and Grimes reported that the risk of death associated with childbirth is 14 times higher than that with abortion in the USA.¹⁴⁹ Despite being widely reported in the media as evidence of the safety of abortion over childbirth, the study was of very poor quality, did not attempt any reference to the established studies cited above, and was soundly criticised by researchers in the field.^{150,151}

Maternal deaths are defined as the death of a woman during or up to six weeks after the end of pregnancy (whether the pregnancy ended by termination, miscarriage or a birth, or was an ectopic pregnancy) through causes associated with, or exacerbated by, pregnancy. Maternal deaths¹⁵² are difficult to identify because this requires information regarding pregnancy status at or near the time of death, as well as the accurate medical cause of death, which are both difficult to ascertain.¹⁵³ A recent review of research methods demonstrates that the majority of published studies on maternal mortality are of very poor quality; most problematic is the conflation of induced and spontaneous abortion data.¹⁵⁴ Even global WHO data on maternal mortality has been criticised for errors, its figures being called “implausibly low” due to underreporting.¹⁵⁵ In this WHO data, the abortion category refers to abortion, miscarriage, and ectopic pregnancy, and was measured at 7.9% of the global burden of maternal mortality, that is, around 193000 deaths annually.¹⁵⁶ On the other hand, the 2014 Global Burden of Disease Study calculated abortion deaths to be 14.9% of total maternal mortality, almost twice the WHO estimate.¹⁵⁷

Risk of death resulting directly from complications during abortion is rare, but increases with each week of gestation.¹⁵⁸ Abortion-related deaths are normally expressed as a proportion of maternal mortality, and are almost always underestimated, being the least well measured. To measure deaths directly related to abortion procedures there are four sources of data: confidential enquiries, vital registration data, verbal autopsy (“*a systematic tool used to collect health information from lay-person informants to assess causes of death*”), and facility-based data sources.¹⁵⁹ Using just one of these sources will lead to underestimation. Gerdts et al. describe some of the barriers to measurement of abortion related deaths, which include women’s and practitioners’ unwillingness to participate in research, misclassification of deaths and complications, and underreporting. Abortion related deaths may be misclassified because of similarities to other obstetric complications such as miscarriage, haemorrhage or sepsis. Furthermore, illegal or stigmatized abortion leads to women being unwilling to seek help for complications. And even in the USA where abortion is widely practiced and accepted,

146 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.

147 Gissler M *et al.* (2004) *Op. Cit.*

148 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.

149 Raymond EG & Grimes DA (2012) The comparative safety of legal induced abortion and childbirth in the United States. *Obstet Gynecol* 119:215-9.

150 Reardon DC (2012) Rehash of abortion safety claim ignores all inconvenient evidence to the contrary. See <https://afterabortion.org/re-hash-of-abortion-safety-claim-ignores-all-inconvenient-evidence-to-the-contrary/> Accessed 15 Jun 2020.

151 Coleman PK (2012) A Serious Misrepresentation of the Relative Safety of Induced Abortion Compared to Childbirth Published in a Leading Medical Journal. See [http://wecareexperts.org/sites/default/files/articles/Raymond%20%20Grimes%20\(2012\)_Critique.pdf](http://wecareexperts.org/sites/default/files/articles/Raymond%20%20Grimes%20(2012)_Critique.pdf) Accessed 2 June 2020.

152 The definition of maternal mortality is “the death of a woman whilst pregnant or within 42 days of delivery or termination of pregnancy, from any cause related to, or aggravated by pregnancy or its management, but excluding deaths from incidental or accidental causes.” Say L *et al.* (2014) Global causes of maternal death: a WHO systematic analysis. *Lancet Global Health* 2:e323-33.

153 Coleman PK *et al.* (2012) *Op. Cit.*

154 Gerdts C *et al.* (2013) Measuring unsafe abortion-related mortality: a systematic review of the existing methods. *PLOS One* 8(1):e53346.

155 Gerland P *et al.* (2015) Correspondence: Maternal mortality estimates. *The Lancet* 384(9961):2211.

156 Say L *et al.* (2014) *Op. Cit.*

157 Kassebaum NJ *et al.* (2014) Global, regional, and national levels and causes of maternal mortality during 1990-2013: a systematic analysis for the Global Burden of Disease Study 2013. *The Lancet* 384:980-1004.

158 Diedrich J & Steinauer J (2009) Complications of surgical abortion. *Clin Obstet & Gynecol* 52(2):205-212.

159 Gerdts C *et al.* (2015) Measuring abortion-related mortality: challenges and opportunities. *Reproductive Health* 12:87.

doctors fail to report recent or current pregnancies on a minimum of 50% of death certificates.¹⁶⁰ These errors result in abortion appearing safer than it really is.

The protective effects of giving birth, as noted above, are well-established yet not well understood. There are several possible explanations. First, the 'healthy pregnant woman effect' suggests that healthier women are more likely to be able to conceive and carry to term, and have more contact with healthcare professionals than non-pregnant women. Second, pregnancy may produce direct health benefits. For example, pregnancies carried to term are associated with physiological changes that reduce the risk of reproductive cancers, and behavioural changes associated with being a parent improve healthy lifestyle behaviours and reduce risky behaviours. Third, perinatal loss may contribute to physiological or psychological effects that lead to an association with increased risk of suicide, substance abuse, PTSD, and poorer general health.¹⁶¹ Women who have abortions may already take more risks or care less for their health. Alternatively, they may experience stress after an abortion that is linked to it, or abortion itself may produce psychological stresses that increase the risk of death.¹⁶²

Overall, the evidence is mixed, inasmuch as it points to common risk factors for both death and abortion, as well as increased impact of abortion, leading to increased mortality. At the very least, an abortion request should be viewed as a flag for women who might need assistance in various areas of their lives – “screening for a history of pregnancy loss (induced or natural) is highly recommended as a means of identifying women who may benefit from additional counselling and interventions.”¹⁶³

Subsequent Pregnancies

Preterm births are the single largest contributor globally to adverse outcomes for infants. In England and Wales, the preterm birth rate is 8%, which has not changed in the past 10 years, and the associated health service cost is £3.4bn per year.¹⁶⁴ In the US the rate is 10% and highest amongst black Americans¹⁶⁵, who also have much higher abortion rates.¹⁶⁶



Numerous studies have identified an increased risk of premature delivery as a result of abortion.^{167,168,169,170,171,172} This includes several meta-analyses.

^{173,174,175,176} The association is stronger for very preterm births and also increases with more prior abortions, which is suggestive of causality. A small number of studies have not found any association between abortion and subsequent premature birth.^{177,178,179}

160 Horon I (2005) Under-reporting of maternal deaths on death certificates and the magnitude of the problem of maternal mortality. *Am J Public Health* 95:478-82.

161 Reardon DC & Coleman PK (2012) Short and long term mortality rates associated with first pregnancy outcome: Population register based study for Denmark 1980-2004. *Medical Science Monitor* 18(9):PH71-76.

162 Reardon DC *et al.* (2002) *Op. Cit.*

163 Reardon DC & Thorp JM (2017) *Op. Cit.*

164 Story L *et al.* (2019) Reducing the impact of preterm birth: Preterm birth commissioning in the United Kingdom. *Eur J Obstet Reprod Biol* <https://doi.org/10.1016/j.eurox.2019.100018>

165 See <https://www.marchofdimes.org/Peristats/ViewTopic.aspx?reg=99&top=3&lev=0&slev=1> Accessed 19 May 2020.

166 See https://abort73.com/abortion/abortion_and_race/ Accessed 19 May 2020.

167 Van Oppenraaij RHF *et al.* (2009) Predicting adverse obstetric outcome after early pregnancy events and complications: a review. *Human Reproduction Update* 15(4):409-421.

168 Ancel PY *et al.* (2004) History of induced abortion as a risk factor for preterm birth in European countries: results of the EUROPOP study. *Human Reproduction* 19(3):734-40.

169 Brown JS Jr *et al.* (2008) Previous abortion and the risk of low birth weight and preterm births. *J Epidemiol & Community Health* 62(1):16-22.

170 Van Oppenraaij RH *et al.* (2009) *Op.Cit.*

171 Scholten B *et al.* (2013) The influence of pregnancy termination on the outcome of subsequent pregnancies: a retrospective cohort study. *BMJ Open* 3:e002803.

172 Moreau C *et al.* (2005) Previous induced abortions and the risk of very preterm delivery: results of the EPIPAGE study. *Brit J Obstet & Gynaecol* 112(4):430-7.

173 Swingle HM *et al.* (2009) Abortion and the risk of subsequent preterm birth: a systematic review with meta-analysis. *J Reprod Med* 54:95-108.

174 Shah PS & Zao J (2009) Induced termination of pregnancy and low birthweight and preterm birth: a systematic review and meta-analyses. *Brit J Obstet & Gynaecol* 116(11):1425-42.

175 Lemmers M *et al.* (2016) Dilatation and curettage increases the risk of subsequent preterm birth: a systematic review and meta-analysis. *Human Reprod* 31(1):34-45.

176 Saccone G *et al.* (2016) Prior uterine evacuation of pregnancy as independent risk factor for preterm birth: a systematic review and metaanalysis. *Am J Obstet & Gynecol* <http://dx.doi.org/10.1016/j.ajog.2015.12.044>.

177 Raatikainen K *et al.* (2006) Induced abortion: not an independent risk factor for pregnancy outcome, but a challenge for health counselling. *Annals of Epidemiology* 16(8):587-592.

178 Reime B *et al.* (2008) Reproductive outcomes in adolescents who had a previous birth or induced abortion compared to adolescent's first pregnancies. *BMC Pregnancy Childbirth* 8:4.

179 Woolner A *et al.* (2013) The effect of method and gestational age at termination of pregnancy on future obstetric and perinatal outcomes: a register-based cohort study in Aberdeen, Scotland. *BJOG* 121:309-318.

The proposed mechanism for increased risk is cervical damage from instrumentation, or as a result of abortion-induced infection.^{180,181,182} The use of D&C for miscarriage or termination increased preterm birth in subsequent pregnancies by 29%, and very preterm birth by 69%. The authors urge the prevention of preterm labour by minimising the use of D&C.¹⁸³

Brazil in particular has a high rate of preterm birth and a large multicentre case control study has found that previous abortion is a risk factor.¹⁸⁴ Even when abortion was likely to have been underestimated because of self-report, a separate study of 9969 nulliparous women found that women with a history of induced abortion were at higher risk of spontaneous preterm birth and premature rupture of membranes than women without a history of induced abortion.¹⁸⁵ Similarly, in the Netherlands, a large nationwide cohort study found that surgical abortion was associated with preterm delivery, cervical incompetence, placental implantation or retention problems, and postpartum haemorrhage in subsequent pregnancies.¹⁸⁶

By far the majority of studies do not distinguish surgical from medical abortion, yet some studies speculate that medical abortion does not cause preterm birth like surgical abortion does. A Scottish record linkage study found that surgical but not medical abortion increases the risk of subsequent preterm birth.¹⁸⁷ Similarly, another Scottish record linkage study showed that the association of preterm birth with abortion declined over the study period (1980 to 2008), the authors speculating that the decline may be due to the increasing use of medical abortion as well as pre-treatment of the cervix prior to surgical abortion¹⁸⁸. However, this appears unlikely given increases in medical abortion in England and Wales, but without any change in the rate of preterm births. Moreover, if infection constitutes an explanatory pathway from abortion to preterm birth¹⁸⁹, then the relatively common occurrence of infection after medical abortion could contribute to the risk. This is supported in a study by Virk et al., who found no difference between medical and surgical abortion with regard to risk of preterm birth.¹⁹⁰ In a Chinese study, while the researchers found no overall association between medical abortion and preterm birth, in a subgroup of women who had curettage after their medical abortion, there was an association.¹⁹¹ Clearly more research is needed on the relationship between medical abortion and preterm birth.



In his analysis of the relationship between abortion and preterm birth, McCaffrey notes that research on the abortion/preterm birth link is stronger than that between smoking and preterm birth, and yet women are widely warned about the latter, but not the former.¹⁹² Other effects of abortion on a subsequent pregnancy include reduction in risk of preeclampsia, although it is unclear whether this is a causal relationship or whether it may be due to the period of pregnancy prior to the abortion.¹⁹³

Finally, a study of Finnish Registry Data from 1983-2007 found that abortion was associated with smoking after the first trimester of a subsequent pregnancy, and being overweight; the authors recommend that doctors performing abortion should advise their patients about the importance of adequate prenatal care in subsequent pregnancies.¹⁹⁴

180 *Ibid.*

181 Saccone G *et al.* (2016) *Op. Cit.*

182 Malosso ERM *et al.* (2018) US trends in abortion and preterm birth. *J Maternal-Fetal & Neonatal Med* 31(18):2463-2467.

183 Lemmers M *et al.* (2016) *Op. Cit.*

184 Passini R *et al.* (2014) Brazilian multicentre study on preterm birth (EMIP): prevalence and factors associated with spontaneous preterm birth. *PLOS One* 9(10):e109069.

185 Makhlouf MA *et al.* (2014) Adverse pregnancy outcomes among women with prior spontaneous or induced abortions. *Am J Perinatol* 31(9):765-772.

186 Scholten BL *et al.* (2013) The influence of pregnancy termination on the outcome of subsequent pregnancies: a retrospective cohort study. *BMJ Open* 3:e002803.

187 Bhattacharya S *et al.* (2012) Reproductive outcomes following induced abortion: a national register-based cohort study in Scotland. *BMJ Open* 2:e000911.

188 Oliver-Williams C *et al.* (2013) Changes in association between previous therapeutic abortion and preterm birth in Scotland, 1980 to 2008: A historical cohort study. *PLOS Medicine* 10(7).

189 Ancel PY *et al.* (2004) *Op. Cit.*

190 Virk J *et al.* (2007) Medical Abortion and the Risk of Subsequent Adverse Pregnancy Outcomes. *N Engl J Med* 357:648-53.

191 Liao H *et al.* (2011) Repeated medical abortions and the risk of preterm birth in the subsequent pregnancy. *Arch Gynecol Obstet* 284:579-586.

192 McCaffrey MJ (2017) The Burden of Abortion and the Preterm Birth Crisis. *Issues in Law & Medicine* 32(1):73-98.

193 Basso O (2015) Invited Commentary: Induced abortion and the risk of preeclampsia in a subsequent pregnancy. *Am J Epidemiol* 182(8):670-672.

194 Holmlund S *et al.* (2016) Induced abortion - impact on a subsequent pregnancy in first-time mothers: a registry-based study. *BMC Pregnancy & Childbirth* 16:325.

Breast Cancer

Whether breast cancer risk is elevated by abortion is a controversial question that has been the subject of numerous studies, several showing increased risk^{195,196,197,198,199,200,201,202,203} and some showing none.^{204,205,206,207} The field remains in dispute^{208,209}, partly due to problems in some studies where research design has been poor. Problems include failure to ensure adequate follow-up time, use of inaccurate abortion registers, choosing inappropriate study populations, and not adequately dealing with differential under-reporting of abortion between cases and controls. Nevertheless many commentators prefer to claim that the matter is settled.²¹⁰ In 2013 however, the American College of Pediatrics made the following statement:

“... IA [induced abortion] prior to 32 weeks in and of itself is a risk factor for breast cancer due to the physiology of breast development and the manner in which abortion interferes with the maturation of the breast cells. Although largely ignored by the mainstream medical community, this risk information deserves a prominent place in the education of all adolescent women who may, in the future, consider an induced abortion.”²¹¹

The College, along with others²¹², has described the mechanism by which abortion may increase the risk of cancer, which relates to the proliferation risk of breast glandular tissue at various stages of pregnancy, and how abortion, by cutting short maturation of cells, leaves breast tissue more exposed to the risk of cancer.

Studies in settings where the incidence of abortion is high present particular problems for abortion/breast cancer research.²¹³ Consequently, Brind and colleagues recently undertook a meta-analysis of 20 studies from South Asia where incidence is low and found an increased risk of breast cancer of 150% for one or more abortions. They also found a dose effect whereby more abortions increased risk further.²¹⁴ Another recent meta-analysis came to a different conclusion and found no effect, except for women who had already had a live birth, where the risk was elevated by 11%.²¹⁵ However, not only was this restricted to case-control studies, but it was dominated by studies from countries with a high incidence of abortion.

At the very least, women presenting for abortion need to be made aware of the intense research interest in this matter, and that the majority of studies have identified increased breast cancer risk after abortion. Of even more direct relevance to women considering abortion is the uncontroversial fact that carrying a first pregnancy to birth is protective against breast cancer.^{216,217} Hence, a woman will have higher breast cancer risk if she undergoes an abortion compared to carrying to term, a necessary piece of information that needs to be included in the informed consent discussion.

195 Brind J *et al.* (1996) Induced abortion as an independent risk factor for breast cancer: a comprehensive review and meta-analysis. *J Epidemiol & Community Health* 50:481-96.

196 Daling JR *et al.* (1994) Risk of breast cancer among young women: relationship to induced abortion. *J National Cancer Inst* 86(21):1584-92.

197 Daling JR *et al.* (1996) Risk of breast cancer among white women following induced abortion. *Am J Epidemiol* 144(4):373-80.

198 Ozmen V *et al.* (2009) Breast cancer risk factors in Turkish women – a University Hospital based nested case control study. *World J Surgical Oncology* 7:37.

199 Hosseinzadeh M *et al.* (2014) Risk factors for breast cancer in Iranian women: A hospital-based case-control study in Tabriz, Iran. *J Breast Cancer* 17(3):236-243.

200 Balekouzou A *et al.* (2017) Reproductive risk factors associated with breast cancer in women in Bangui: a case-control study. *BMC Women's Health* 17:14.

201 Zouré AA *et al.* (2016), Multiparity and breast cancer risk factor among women in Burkina Faso, *Asian Pac J Cancer Prev* 17(12):5095-5099.

202 Huang Y *et al.* (2013) A meta-analysis of the association between induced abortion and breast cancer risk among Chinese females. *Cancer Causes Control* 25(2):227-36.

203 Kamath R *et al.* (2013) A study on risk factors of breast cancer among patients attending the Tertiary Care Hospital, in Udipi District. *Indian J Community Med* 38(2):95-99.

204 Beral V *et al.* (2004) Breast cancer and abortion: collaborative reanalysis of data from 53 epidemiological studies, including 83,000 women with breast cancer from 16 countries. *The Lancet* 363:1007-16.

205 Ye Z *et al.* (2002) Breast cancer in relation to induced abortions in a cohort of Chinese women. *Brit J Cancer* 87:977-981.

206 Wu JQ *et al.* (2014) Induced abortion and breast cancer: results from a population-based case control study in China. *Asian Pac J Cancer Prev* 15(8):3635-40.

207 Karim SM *et al.* (2015) Oral contraceptives, abortion and breast cancer risk: a case control study in Saudi Arabia. *Asian Pac J Cancer Prev* 16(9):3957-60.

208 Brind J (2009) The abortion-breast cancer connection. *Specialty Law Digest. Health Care Law* 340:9-35.

209 Rowlands S (2011) Misinformation on abortion. *Eur J Contraception & Reprod Health Care* 16(4):233-40.

210 Phillips KA *et al.* (2014) Abortion and breast cancer risk for Australian women. *Med J Aust* 201(7):381.

211 American College of Pediatrics (2013) Information for the Adolescent Woman and Her Parents: Abortion and the Risk of Breast Cancer. *Issues in Law and Medicine* 32(1):99-104.

212 Langfranchi A & Fagan P (2014) Breast Cancer and Induced Abortion: A Comprehensive Review of Breast Development and Pathophysiology, the Epidemiologic Literature, and Proposal for Creation of Databanks to Elucidate All Breast Cancer Risk Factors. *Issues in Law and Medicine* 29(1):1-133.

213 Brind J (2017) Abortion-Breast Cancer Link (ABC Link): Review of Recent Evidence from Asia. *Issues in Law and Medicine* 32(7):325-333.

214 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 and Medicine* 33(1):33-54.

215 Deng Y *et al.* (2018) Induced abortion and breast cancer. An updated meta-analysis. *Medicine* 97:3(e9613).

216 Verlinden I *et al.* (2005) Parity-induced changes in global gene expression in the human mammary gland. *Eur J Cancer Prevention* 14(2):129-37.

217 Russo IH & Russo J (2011) Pregnancy-induced changes in breast cancer risk. *J Mammary Gland Biology & Neoplasia* 16(3):221-33.

Infertility

Government and advocacy organisations, as well as abortion providers, have publicly declared that there is either no increased risk of infertility from abortion, or perhaps a very small risk if infection after abortion is untreated.^{218,219,220} This is an under-researched field, yet there is sufficient contrary evidence to raise concern that abortion may instead significantly compromise future fertility.

Studies from the 70s and 80s came to mixed conclusions. Two Greek studies found that abortion more than doubled the risk of infertility^{221,222}, whereas other studies found no effect, or a possible effect if the study population had been larger.^{223,224,225,226,227}

In the late 80s and early 90s, two UK studies concluded that abortion did not affect fertility, yet one identified 5.7% of women as infertile or subfertile after abortion²²⁸, and the other found that women who had aborted their first pregnancy had a 14% decline in fertility that was not statistically significant.²²⁹ If larger numbers of women had been recruited this observation may have reached statistical significance.

In a 2005 UK study, while the researchers found no difference in subsequent fertility between women who aborted versus those who didn't, they did find that for the abortion group, fertility was higher before the abortion compared with after. This implies that abortion adversely affected fertility in a group with higher than average fertility before the abortion.²³⁰

A series of studies from China identified a link²³¹, but this could not be confirmed by a more recent Chinese study.²³² Russian researchers attributed infertility amongst women in their sample to the high rate of abortion – nearly 54% of the women in their sample had had an induced abortion.²³³

Two recent studies from Taiwan both identified an increased risk of infertility as a result of abortion.^{234,235} While the authors of one of these studies (Lin et al.) concluded that induced abortion did not increase the risk of infertility, in fact abortions coded as mixed or unspecified, and representing over 90% of all abortions, were associated with an elevated risk. While unclear, it is likely these abortions were induced but not coded as such. This is an important study because it used good quality national registry data, and should be followed up.

Despite the mixed outcomes from these studies over many decades, there are good reasons why abortion would be expected to lead to some degree of infertility. This is because there are many studies that have identified links between abortion and adverse outcomes that in turn have themselves been known for some time to have a negative impact on fertility.

218 Abortion risks, NHS. See <https://www.nhs.uk/conditions/abortion/risks/> Accessed 15 Aug 2019.

219 Planned Parenthood America, What facts about abortion do I need to know? See <https://www.plannedparenthood.org/learn/abortion/considering-abortion/what-facts-about-abortion-do-i-need-know> Accessed 15 Aug 2019.

220 British Pregnancy Advisory Service, Abortion Frequently asked questions: will abortion affect my ability to get pregnant in the future? See <https://www.bpas.org/abortion-care/considering-abortion/> Accessed 15 Aug 2019.

221 Trichopoulos D *et al.* (1976) Induced Abortion and Secondary Infertility. *Brit J Obstet Gynaecol* 83:645-650.

222 Tzonou A *et al.* (1993) Induced abortions, miscarriages, and tobacco smoking as risk factors for secondary infertility. *J Epidemiol Comm Health* 47:36-39.

223 Daling JR *et al.* (1981) Role of Induced Abortion in Secondary Infertility. *Obstet Gynecol* 57(1):59-61.

224 Daling JR *et al.* (1985) Tubal infertility in relation to prior induced abortion. *Fertility & Sterility* 43(3):389-394.

225 Obel EB (1979) Fertility Following Legally Induced Abortion. *Acta Obstetrica et Gynecologica Scandinavica* 58(6):539-542.

226 Dalaker K *et al.* (1979) Delayed reproductive complications after induced abortion. *Acta Obstetrica et Gynecologica Scandinavica* 58(5):491-494.

227 Stubblefield PG *et al.* (1984) Fertility after induced abortion: a prospective follow up study. *Obstet Gynecol* 62(2):186-193.

228 MacKenzie IZ & Fry A (1988) A prospective self-controlled study of fertility after second-trimester prostaglandin-induced abortion. *Am J Obstet Gynecol* 158:1137-1140.

229 Frank P *et al.* (1993) The effect of induced abortion on subsequent fertility. *Brit J Obstet Gynaecol* 100:575-580.

230 Hassan MAM & Killick SR (2005) Is previous aberrant reproductive outcome predictive of subsequently reduced fecundity? *Human Reproduction* 20(3):657-664.

231 These papers were all published in Chinese and were cited by Chen X *et al.* (2008) Induced Abortion and the Risk of Tubal Infertility. *J Reprod Contracept* 19(4):219-225.

232 Chen X *et al.* (2008) *Op. Cit.*

233 Philippov OS *et al.* (1998) Estimation of the prevalence and causes of infertility in Western Siberia. *Bulletin World Health Org* 76(2):183-187.

234 Lin TB *et al.* (2018) Long-term physical health consequences of abortion in Taiwan, 2000 to 2013. A nationwide retrospective cohort study *Medicine Open* 97:31(e11785).

235 Tao X *et al.* (2018) Relationships between female infertility and female genital infections and pelvic inflammatory disease: a population-based nested controlled study. *Clinics* 73:e364.

Abortion is known to cause cervical damage²³⁶, infections that lead to pelvic inflammatory disease (PID)²³⁷, incomplete abortion that causes infections and follow up surgery²³⁸, intrauterine adhesions (IUAs)²³⁹, and endometrial thinning.^{240,241} In turn, each of these has been shown to lead to infertility – cervical damage²⁴², PID²⁴³, IUAs²⁴⁴, and endometrial thinning.²⁴⁵ Furthermore, whilst more controversial, a pathway from abortion to adverse mental health to infertility is theoretically possible.²⁴⁶

Taken together, all of these observations leave doctors in a difficult position – on the one hand there is sufficient evidence for concern, but on the other it is insufficient to estimate the level of risk. Nevertheless, even if the risk were determined to be small, women have a right to be informed.²⁴⁷ Certainly, if a woman were to ask about risk, she should be informed that the research is mixed, with some studies showing a risk and others not.

Psychological Effects of Abortion

The complex psychology of abortion has been examined by hundreds of researchers over many decades, with a diversity of methodologies and interpretations. In scientifically precise terms the question of causality cannot be answered definitively, as it is not possible to conduct a randomised controlled trial assigning some women to an abortion group and others to a birth group. Therefore, most studies examine the association between abortion and mental health, even though researchers point to various characteristics of the data that infer causality.^{248,249} Beyond inference, criteria such as those developed by Bradford-Hill²⁵⁰ have been applied to make a case for causality.²⁵¹ Moreover, the fact that women themselves often make the link between an abortion and adverse psychological outcomes is in itself evidence of causation, as is the therapeutic efficacy of counselling that addresses past abortions.^{252,253,254} Regardless of this, proof of causality need not be a requirement for informed consent, because risk encompasses uncertainty. As Reardon notes,

“... the question of whether a statistically significant risk is solely due to abortion, partially due to abortion, or only incidentally associated with abortion is itself just another of the uncertainties about the procedure, and therefore a true risk about which patients should be informed.”²⁵⁵

236 See <https://www.nhs.uk/conditions/abortion/risks/> Accessed 15th Aug 2019.

237 Charonis G & Larsson PG (2006) Use of pH/whiff test or QuickVue Advanced® pH and Amines test for the diagnosis of bacterial vaginosis and prevention of postabortion pelvic inflammatory disease *Acta Obstetrica et Gynecologica* 85:837-843.

238 Mentula M *et al.* (2018) Intrauterine adhesions following an induced termination of pregnancy: a nationwide cohort study. *BJOG* 125:1424–1431.

239 Hooker A *et al.* (2016) Prevalence of intrauterine adhesions after termination of pregnancy: a systematic review. *The Europ J Contracept & Reprod Health Care* 21(4):329-335.

240 Azumaguchi A *et al.* (2017) Role of dilatation and curettage performed for spontaneous or induced abortion in the etiology of endometrial thinning. *J Obstet Gynaecol Res* 43(3):523–529.

241 Wang Y *et al.* (2018) Association between induced abortion history and later in vitro fertilization outcomes. *Int J Gynecol Obstet* 141:321–326.

242 <https://www.nhs.uk/conditions/infertility/causes/>

243 Brunham RC *et al.* (2015) Pelvic Inflammatory Disease. *N Engl J Med* 372:2039-2048. DOI: 10.1056/NEJMra1411426

244 Schenker JG (1996) Etiology of and therapeutic approach to synechia uteri. *European J Obstet & Gynecol & Reprod Biol* 65:109-113.

245 Kasius A *et al.* (2014) Endometrial thickness and pregnancy rates after IVF: a systematic review and meta-analysis. *Human Reproduction Update* 20(4):530–541.

246 Baldur-Felskov B *et al.* (2013) Psychiatric disorders in women with fertility problems: results from a large Danish register-based cohort study. *Human Reproduction* 28(3):683–690.

247 See footnote 14 re Montgomery v Lanarkshire.

248 Sullins DP (2016) Abortion, substance abuse and mental health in early adulthood: Thirteen-year longitudinal evidence from the United States. *SAGE Open Med* 4:1-11.

249 Coleman PK (2011) Abortion and mental health: quantitative synthesis and analysis of research published 1995-2009. *The British Journal of Psychiatry* 199(03):180-186.

250 Bradford-Hill A (1965) The environment and disease: association or causation? *Proc Royal Soc Med* 58:295-300.

251 Fergusson DM *et al.* (2008) *Op. Cit.*

252 Whitney DK (2017) Emotional Sequelae of Elective Abortion: The Role of Guilt and Shame. *J Pastoral Care & Counseling* 71(2):98-105.

253 Speckhard A & Mufel N (2003) Universal Responses to Abortion? Attachment, Trauma, and Grief Responses in Women Following Abortion. *J Prenatal & Perinatal Psychology & Health* 18(1):3-37.

254 Coleman PK (2018) Negative Abortion Experiences: Predictors and Development of Post-Abortion Psychological and Relational Adjustment Scale. *Issues in Law & Med* 33(2):133-162.

255 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.

Reviews

Reviews have arrived at disparate conclusions^{256,257,258,259,260,261,262}, highlighting that the field is riven with disagreement^{263,264}, making the provision of guidance to physicians difficult. One particularly influential review in 2011 by the National Collaborating Centre for Mental Health at the UK's Royal College of Psychiatrists (RCOP) concluded that there was no link between abortion and adverse mental health outcomes.²⁶⁵ However, the review was disturbingly flawed and has been scathingly criticised, primarily because it excluded quality research that showed a link, yet included poor quality studies that denied a link.²⁶⁶ One of the participants invited by RCOP to provide specialist input, yet whose professional views were ignored, commented "*this review should not be taken very seriously and the conclusions not at all.*"²⁶⁷

A rigorous rubric has recently been developed to assess study quality in a comprehensive way that if adopted should go some way to improving study quality as well as informing which studies to include in reviews.²⁶⁸

Taking into account more recent research, a 2013 review by Bellieni and Buonocore concluded that abortion is linked to a variety of adverse mental health outcomes, arguing that foetal loss is traumatic, whether by miscarriage, induced abortion, or stillbirth.²⁶⁹ Similarly, a 2018 review by Reardon that was broadly inclusive of a range of studies showed that across all domains – depression, anxiety, substance abuse, PTSD, suicide ideation, and various other disorders – abortion was a risk factor. Nevertheless, some reviews have advanced a very strong view that there is no link^{270,271,272}, unprepared to even acknowledge controversy in the field. While some researchers acknowledge an effect on some women they can be quick to blame social mores as the cause of mental harm, rather than abortion itself.²⁷³

One prominent researcher has described problems in the field as follows:

*"[there is a] ... truly shameful and systematic bias that permeates the psychology of abortion. Professional organisations in the USA and elsewhere have arrogantly sought to distort the scientific literature and paternalistically deny women the information they deserve to make fully informed healthcare choices and receive necessary mental health counseling when and if an abortion decision proves detrimental."*²⁷⁴

Research that appears to show no link has primarily emerged in the past 10 years or so and has sometimes used convoluted and inadequate study designs or suffered from selection bias. Because of this, some authors have drawn conclusions on faulty and unrepresentative data, or drawn unsustainable conclusions. The highly politicized nature of the subject matter may go some way to explaining how contaminated the field has now become. No such problem seems to exist when it comes to natural pregnancy loss, in which case the association with adverse mental health outcomes has been more readily accepted.²⁷⁵

256 American Psychological Association (2008) *Report on the Task Force on Mental Health and Abortion*. Washington DC.

257 Charles VE *et al.* (2008) Abortion and long-term mental health outcomes: a systematic review of the evidence. *Contraception* 78:436-450.

258 Major B *et al.* (2009) Abortion and Mental Health: Evaluating the Evidence. *American Psychologist* 64(9):863-890.

259 Coleman PK (2011) *Op. Cit.*

260 Cameron S (2010) Induced abortion and psychological sequelae. *Best Practice & Res Clin Obstet & Gynaecol* 24:657-665.

261 Casey PR (2010) Abortion among young women and subsequent life outcomes. *Best Practice & Res Clin Obstet & Gynaecol* 24:491-502.

262 Steinberg JR & Rubin LR (2014) Psychological aspects of contraception, unintended pregnancy, and abortion. *Policy Insights Behav & Brain Sciences* 1(1):239-247.

263 Steinberg JR *et al.* (2012) Fatal flaws in a recent meta-analysis on abortion and mental health. *Contraception* 86:430-437

264 Steinberg JR & Finer LB (2012) Coleman, Coyle, Shuping, and Rue make false statements and draw erroneous conclusions in analyses of abortion and mental health using the National Comorbidity Survey. *J Psychiatr Res* 46:407-8; with reply by Coleman PK.

265 National Collaborating Centre for Mental Health at the Royal College of Psychiatrists. (2011) Induced abortion and mental health: A systematic review of the mental health outcomes of induced abortion, including their prevalence and associated factors. Academy of Medical Royal Colleges. See https://www.aomrc.org.uk/wp-content/uploads/2016/05/Induced_Abortion_Mental_Health_1211.pdf Accessed 15 May 2018.

266 Coleman PK (2017) Post-Abortion Mental Health Research: Distilling Quality Evidence from a Politicized Professional Literature. *J American Physicians & Surgeons* 22(2):38-43.

267 Ney P (2013) A Common Sense Scientific Critique of the NCCMH and Royal College of Psychiatry Review. *WebmedCentral Reproduction* 4(10):WMC004429

268 Coleman PK (2017) *Op. Cit.*

269 Bellieni CV & Buonocore G (2013) Abortion and subsequent mental health: Review of the literature. *Psychiatry & Clin Neurosciences* 67:301-310.

270 Stotland NL (2011) Induced abortion and adolescent mental health. *Curr Opin Obstet Gynecol* 23:340-3.

271 Robinson GE *et al.* (2009) Is there an "abortion trauma syndrome"? Critiquing the evidence. *Harv Rev Psychiatry* 17:268-290.

272 National Collaborating Centre for Mental Health (2011) *Op. Cit.*

273 Kelly K (2014) The spread of 'Post Abortion Syndrome' as social diagnosis. *Social Sci & Med* 102:18-25.

274 Coleman PK (2012) Author reply to "Abortion and mental health: guidelines for proper scientific conduct ignored." *Brit J Psychiatry* 200:74-83.

275 Jacob L *et al.* (2017) Prevalence of depression, anxiety, and adjustment disorders in women with spontaneous abortion in Germany – A retrospective cohort study. *Psychiatry Research* 258:382-386.

Comparison Groups

One of the more contentious matters in studies on the psychological impact of abortion, which may have a bearing upon outcomes, involves which groups should be compared with one another. It is possible to compare women having an abortion with those having a miscarriage or other natural pregnancy loss, with those who give birth, or with those who have never been pregnant. Additionally, it would be possible to compare groups based upon whether a pregnancy was intended or not, or wanted or not. However, the use of such terminology is fraught because there is no equivalence for example between an intended pregnancy and a wanted one, let alone whether seeking abortion simply equates with a pregnancy being unwanted.^{276,277,278,279,280} In a 2018 study of adolescents in the US for example, just one quarter of young women with an unwanted first pregnancy had an abortion.²⁸¹ Nevertheless, for studies on the psychological effects of abortion, while one of the better comparisons may be between women who abort an unintended pregnancy and those who do not²⁸², each and every comparison has merit in building a multifaceted picture true to the complexity of the individual experiences of women who abort a pregnancy.

The Turnaway Study

Before considering the bulk of the research, one relatively recent study in particular deserves special mention for three reasons. First, because it claims to use the most appropriate comparison groups; second, because it has followed women longitudinally over 5 years; and third, because it has been influential, at least in part because the authors have chosen to derive numerous papers from the one data set, and also because the papers draw strong links to the policy implications the authors and their funders support.

The study in question is termed the 'Turnaway Study', because it compares women who have an abortion close to the gestational limit set by the clinic, with women seeking an abortion but denied one because their pregnancy was advanced beyond the gestational limit set by the clinic. These limits vary from 10 weeks to 23 weeks. A third comparison group was women receiving first trimester abortions.

The authors of the study claim that comparing 'turnaways' with those receiving an abortion is of most relevance because it allows a comparison free of the possibility that not wanting a pregnancy may be related to adverse mental health outcomes rather than the abortion itself. In other words, all women in the study do not want to be pregnant, and therefore any findings are related to the abortion alone and not to whether a pregnancy was unwanted.

The study has resulted in at least 27 papers.²⁸³

In brief, the primary finding of the study, and contrary to the majority of others, was that having an abortion does not have an adverse effect on a variety of mental health outcomes and other measures. This includes on emotional responses^{284,285,286}, perceived stress and emotional support²⁸⁷, substance use and/or abuse^{288,289,290,291,292}, self-esteem or life

276 Pulley L *et al.* (2002) The extent of pregnancy mistiming and its association with maternal characteristics and behaviours and pregnancy outcomes. *Persp Sex Reprod Health* 34(4):206-211.

277 Finer LB & Henshaw SK (2006) Disparities in rates of unintended pregnancy in the United States 1994-2001. *Persp Sex Reprod Health* 38(2):90-96.

278 Barrett G & Wellings K (2002) What is a 'planned' pregnancy? empirical data from a British study. *Social Science & Med* 55:545-557.

279 Kirkman M *et al.* (2010) *Op. Cit.*

280 Williams L *et al.* (2001) Pregnancy wantedness: attitude stability over time. *Social Biology* 48(3):212-233.

281 Gomez AM (2018) Abortion and subsequent depressive symptoms: an analysis of the National Longitudinal Study of Adolescent Health. *Psychological Medicine* 48:294-304.

282 Fergusson DM *et al.* (2013) Abortion and mental health: A response to Romans and Steinberg. *Aust N Z J Psychiatry* 47(12):1201-1203.

283 For a full list, see <https://www.ansirh.org/research/abortion>

284 Rocca CH *et al.* (2013) Women's emotions one week after receiving or being denied an abortion in the United States. *Persp Sex Reprod Health* 45:122-31.

285 Rocca CH *et al.* (2015) Decision Rightness and Emotional Responses to Abortion in the United States: A Longitudinal Study. *PLoS ONE* 10(7): e0128832.

286 Rocca CH *et al.* (2019) Emotions and decision rightness over five years following an abortion: An examination of decision difficulty and abortion stigma. *Social Science & Medicine* <https://doi.org/10.1016/j.socscimed.2019.112704>.

287 Harris LF *et al.* (2014) Perceived stress and emotional social support among women who are denied or receive abortions in the United States: a prospective cohort study. *BMC Womens Health* 14(76).

288 Roberts SC & Foster DG (2014) Receiving versus being denied an abortion and subsequent tobacco use. *Matern Child Health J* 19(3):438-46.

289 Roberts SCM *et al.* (2014) Receiving versus being denied an abortion and subsequent drug use. *Drug Alcohol Depend* 134:63-70.

290 Roberts SCM *et al.* (2016) Moderators and mediators of the relationship between receiving versus being denied a pregnancy termination and subsequent binge drinking. *Drug Alcohol Depend* 159:117-124.

291 Roberts SCM *et al.* (2015) Receiving versus being denied a pregnancy termination and subsequent alcohol use: A longitudinal study. *Alcohol & Alcoholism* 50(4):477-484.

292 Robert SCM *et al.* (2018) Changes in Alcohol, Tobacco, and Other Drug Use Over Five Years After Receiving Versus Being Denied a Pregnancy Termination. *J Stud Alcohol Drugs* 79:293-301.

satisfaction²⁹³, partner relationship^{294,295}, depression, anxiety and post-traumatic stress^{296,297,298,299}, and aspirational plans.³⁰⁰ The study authors also claim that decisional certainty is high and no different to that involved in any other medical decision.^{301,302,303}

Unfortunately, this plethora of papers carries the false appearance of a significant and varied body of work. However, all the papers published as part of the Turnaway Study rely on a single flawed data set, hence all papers are in a sense pre-determined by it.

The Turnaway Study is the work of Advancing New Standards in Reproductive Health at the Bixby Center for Global Reproductive Health at the University of California. ANSIRH is committed to free and open access to abortion³⁰⁴, and funders of the work include like-minded organisations such as the David and Lucille Packard Foundation. Most of the papers include statements about the authors' desired political outcomes.

The Turnaway Study has a variety of flaws, but the essential one involves the initial selection and retention of women, and this failing affects all that follows. Only 37.5% of women who were approached consented to participate at the time of their abortion or turnaway and a further 15% did not undertake the baseline interview. Hence, only 31.9% of women began the study, with further dropout yielding 22% participation at 5 years. It is unsurprising that those wishing not to participate would include those potentially most affected by the abortion, either initially or subsequently. And given that the turnaway group can only be derived from a small number of women and the abortion group from a very large pool, it is almost certain that the abortion group would represent women least likely to suffer adverse consequences.

Besides selecting a highly unrepresentative group (who were paid amounts for participation that could be considered coercive), the Turnaway Study authors have mischaracterized their study design³⁰⁵, selectively reported on results, used 'shockingly simplistic' outcome measures³⁰⁶, mixed results from widely differing gestational ages, and failed to provide de-identified data upon request by other researchers³⁰⁷, as required by the norms of research integrity.

Selection Bias and Other Problems

The problem of selection bias appears in other papers as well. For example, in a study claiming there was no link between abortion and posttraumatic stress, 56% of those asked refused to participate, and then 49% of those who participated at the baseline interview did not respond at the 3-month mark^{308,309}, leaving a sample of just 29%. When a sample is self-selected in this way, just as in the Turnaway Study, there is every reason why women who have reacted adversely to the abortion would not wish to participate.³¹⁰

293 Biggs MA *et al.* (2014) Does abortion reduce self-esteem and life satisfaction? *Qual Life Res* 23(9):2505–13.

294 Mauldon J *et al.* (2015) Effect of abortion vs. carrying to term on a woman's relationship with the man involved in the pregnancy. *Persp Sex Reprod Health* 47(1):11–18.

295 Roberts SCM *et al.* (2014) Risk of violence from the man involved in the pregnancy after receiving or being denied an abortion. *BMC Med* 12:144.

296 Biggs MA *et al.* (2016) Does abortion increase women's risk for posttraumatic stress? Findings from a prospective longitudinal cohort study. *BMJ Open* 2016;6:e009698.

297 Foster DG *et al.* (2015) A comparison of depression and anxiety symptom trajectories between women who had an abortion and women denied one. *Psychol Med* 45:2073–82.

298 Biggs MA *et al.* (2015) Mental Health Diagnosis 3 years after receiving or being denied an abortion in the United States. *Am J Publ Health* 105(12):2557–2563.

299 Biggs MA *et al.* (2016) Women's mental health and well-being 5 years after receiving or being denied an abortion. A prospective, Longitudinal Cohort Study. *JAMA Psychiatry* Dec 14 doi:10.1001/jamapsychiatry.2016.3478.

300 Upadhyay UD *et al.* (2015) The effect of abortion on having and achieving aspirational one-year plans. *BMC Women's Health* 15:102.

301 Steinberg JR (2020) Decision rightness and relief predominate over the years following an abortion. *Social Science & Medicine* 248:112782.

302 Ralph LJ *et al.* (2017) Measuring decisional certainty among women seeking abortion. *Contraception* 95:269–278.

303 Rocca CH *et al.* (2019) *Op. Cit.*

304 For example, see My Abortion Story by Director of the Turnaway Study, Rana Barar. <https://www2.kqed.org/perspectives/2016/06/24/my-abortion-story/>

305 Abortion Risks. Turn Away Study. See http://abortionrisks.org/index.php?title=Turn_Away_Study Accessed 12 June 2020.

306 Coleman PK The Continuing Saga to Deny the Heartache that is Abortion: JAMA Psychiatry's Latest, a Primer on the Abuse of Science. See <https://wecareexperts.org/content/continuing-saga-deny-heartache-abortion-jama-psychiatry%E2%80%99s-latest-primer-abuse-science> Accessed 24 April 2020.

307 Reardon DC (2018a) The Embrace of the Proabortion Turnaway Study: Wishful Thinking? or Willful Deceptions? *Linacre Quarterly* 85(3):204–212.

308 Wallin Lundell I *et al.* (2013) Posttraumatic stress among women after induced abortion: a Swedish multi-centre cohort study. *BMC Womens Health* 13:52.

309 Wallin Lundell I *et al.* (2013a) The prevalence of posttraumatic stress among women requesting induced abortion. *Eur J Contracept Reprod Health Care* 18:480–488.

310 Weisaeth L (1989) Importance of high response rates in traumatic stress research. *Acta Psychiatr Scand Suppl* 355:131–137.

The Dutch Abortion and Mental Health Study (DAMHS) has yielded several papers denying any adverse mental health effects of abortion.^{311,312} However, the problem of selection bias in this cohort is particularly striking. 2443 women were approached at the clinic shortly after their abortion. 44.1% agreed to participate. Then for various reasons - ranging from exit without reason, being ineligible after agreeing, not being reachable, being unable to be interviewed when researchers wished, did not show up, reconsidered and refused, non-completion of interview, and general loss to follow up – at the final interview 3 years after abortion, just 264 women remained (10.8%).³¹³ This level of attrition is unacceptable in social science research, especially when the reasons are almost certainly linked to the outcome measures.

Another important aspect of research design involves the timing of when surveys are conducted. For example, in a study by Toffol and coworkers³¹⁴, who concluded that abortion is associated with an overall reduction in anxiety, the baseline survey was administered prior to the abortion, which was conducted later that day. As has been pointed out³¹⁵, it is not surprising that there would be some decline in anxiety given the highly anxious moments just prior to an abortion being used as a 'baseline', instead of a more accurate historical measure some time prior to pregnancy.

Another potential weakness of some studies is the failure to follow psychological effects for long enough – a few months or even years may be too short a time frame³¹⁶. Phenomenological research suggests that women may cope well initially, but years later reappraise the event negatively.^{317,318} Finally, there are two further problems. First, as noted, under-reporting of past abortions could result in misclassification, in that those who have had an abortion but claim not to have, may appear in the control group and hence dilute any adverse effect. And second, studies that rely on self-report about current or past psychological health risk memory recall bias and/or distortion due to cognitive dissonance in relation to a memory that is painful to relive.³¹⁹

Emotional Distress

Numerous studies have identified emotional distress immediately after abortion and in the months following. Women experience a range of emotions after abortion, including sadness, loneliness, shame, guilt, grief, doubt and regret.^{320,321,322,323,324,325} However, some studies also identify positive reactions like relief, happiness and satisfaction.³²⁶ In the longer term, some women exhibited cognitive dissonance, describing their abortions of 10 years or more ago in terms of negative emotions yet believing the correct choice was made.³²⁷ Specific strategies of avoidance were used to cope.

In a study of Canadian university students, all participants described significant grief 3 years after the index abortion.³²⁸ While not a representative sample, a study from Belarus found that 82% of the women had 'negative psychological sequelae'.³²⁹

In a recent study by Coleman and co-workers designed to examine in-depth responses to abortion, women reported "deep feelings of loss, existential concerns, and reduced quality of life, with heart-wrenching clarity. For many women, the abortion experience became a pivotal point in their lives, impacting their self-image, their personality, and their connectivity to others."³³⁰

311 van Ditzhuijzen J *et al.* (2017) Correlates of Common Mental Disorders Among Dutch Women Who Have Had an Abortion: A Longitudinal Cohort Study. *Persp Sex Reprod Health* 49(2):123–131.

312 van Ditzhuijzen J *et al.* (2018) Long-term incidence and recurrence of common mental disorders after abortion. A Dutch prospective cohort study. *J Psychiatric Research* 102:132–135.

313 *Ibid.*

314 Toffol E *et al.* (2016) Anxiety and quality of life after first-trimester termination of pregnancy: a prospective study. *Acta Obstet Gynecol Scand* 95(10):1171–80.

315 Reardon DC (2016) Missed opportunities and overstated results in anxiety and quality of life study following termination of pregnancy. *Acta Obstet Gynecol Scand* doi: 10.1111/aogs.13053.

316 Trybulski J (2005) The long-term phenomena of women's postabortion experiences. *Western J Nursing* 27(5):577–582.

317 Goodwin P & Ogden J (2007) Women's reflections upon their past abortions: An exploration of how and why emotional reactions change over time. *Psychology & Health* 22(2):231–248.

318 Trybulski J (2006) Women and abortion: the past reaches into the present. *J Advanced Nursing* 54(6):683–690.

319 Keys J (2010) Running the gauntlet: women's use of emotion management techniques in the abortion experience. *Symbolic Interact* 33(1):41–70.

320 Kero A *et al.* (2001) *Op. Cit.*

321 Kero A *et al.* (2004) *Op. Cit.*

322 Fergusson DM *et al.* (2006) Abortion in young women and subsequent mental health. *J Child Psychology & Psychiatry* 47(1):16–24.

323 Fergusson DM *et al.* (2009) *Op. Cit.*

324 Hess RF (2004) Dimensions of women's long-term postabortion experience. *The American Journal of Maternal Child Nursing* 29(3):193–198.

325 Korenromp MJ *et al.* (2005) *Op. Cit.*

326 Fergusson DM *et al.* (2009) *Op. Cit.*

327 Dykes K *et al.* (2011) Long term follow-up of emotional experiences after termination of pregnancy: women's views at menopause. *J Reproductive & Infant Psychology* 29(1):93–112.

328 Curley M & Johnston C (2013) The characteristics and severity of psychological distress after abortion among university students. *J Behavioral Health Services & Research* 40(3):279–293.

329 Speckhard A & Mufel N (2003) *Op. Cit.*

330 Coleman PK *et al.* (2017) *Op. Cit.*

Among US college students - women who had an abortion and men whose partners had an abortion – one third of women and one third of men were uncomfortable and expressed regret about the abortion decision.³³¹ A third of men and women also experienced a sense of longing for the aborted foetus. Moreover, they often use terms like ‘child’ or ‘baby’ to describe their loss.

In a comparison between the mental health effects of miscarriage compared to induced abortion, Broen and co-workers found that 5 years later, women who had an abortion experienced levels of avoidance, guilt, shame and relief that remained elevated compared to women who miscarried.³³² The question of shame has been identified and examined in more detail by Whitney, who discussed the suspension of emotions that can occur in an abortion decision, after which guilt, if unaddressed, can be transformed into shame. In Coleman’s analysis of women who attended a crisis pregnancy centre for post-abortion care, shame was also a common theme, as were guilt, regret, and anger at self.³³³

In contrast, in a pilot study, Canario and co-workers found there to be no difference in emotional adjustment between women who had a miscarriage, induced abortion, or abortion for foetal anomalies.³³⁴ These authors also found that a couple’s relationship could assist in emotional adjustment. In a qualitative study aimed at exploring women’s emotional difficulties after abortion, the author concluded that any difficulty results from “*social disapproval, romantic relationship loss, and head versus heart conflict*”.³³⁵ It is important to note that in this study the women were recruited through an abortion talkline, and that about half of callers could not be recruited because they were “*judged too distraught*”.

Depression and Anxiety

Results from a 2006 New Zealand study³³⁶ on mental health and abortion confirm other work showing a link between the two.³³⁷ The New Zealand study revealed that 42% of women who had an abortion experienced major depression in the four years prior to interview. This is nearly twice the rate of those who had never been pregnant and 35 % higher than those who had continued their pregnancy. This study also showed that abortion increased the risk of anxiety disorders. The same research team undertook a more detailed follow up study correcting carefully for possible confounders, in which their earlier findings were confirmed.³³⁸ In the more recent study, they concluded that women who had abortions experienced mental health disorders 30% more often compared to women who had not had an abortion. The authors went further to suggest that there were good grounds for causality, but that more work needed to be done before making strong definitive statements about abortion causing mental health disorders.



Another more recent paper from the same group showed that the extent to which women reported an adverse reaction to abortion correlated with the extent of mental health disorders.³³⁹ Other researchers have also found a link between

331 Coleman PK & Nelson ES (1998) The quality of abortion decisions and college students’ reports of post-abortion emotional sequelae and abortion attitudes. *J Social & Clinical Psychology* 17(4):425-442.

332 Broen AN *et al.* (2005) The course of mental health after miscarriage and induced abortion: a longitudinal, five-year follow-up study. *BMC Medicine* 3(1):18.

333 Coleman PK *et al.* (2017) *Op. Cit.*

334 Canario C *et al.* (2011) Women and men’s psychological adjustment after abortion: a six month prospective pilot study. *J Reproductive & Infant Psychology* 29(3): 262-275.

335 Kimport K (2012) (Mis)Understanding abortion regret. *Symbolic Interaction* 35(2):105-122.

336 Fergusson DM *et al.* (2006) *Op. Cit.*

337 Reardon DC & Cougle JR (2002) Depression and unintended pregnancy in the National Longitudinal Survey of Youth: a cohort study. *Brit Med J* 324:151-2.

338 Fergusson DM *et al.* (2008) Abortion and mental health disorders: evidence from a 30-year longitudinal study. *Brit J Psychiatry* 193(6):444-451.

339 Fergusson DM *et al.* (2009) *Op. Cit.*

abortion and depression^{340,341,342}, as well as anxiety³⁴³, although some groups have not been able to confirm this.^{344,345,346,347} With regard to post-abortion anxiety and possibly depression, others have found these mood disorders to be related to pre-abortion factors rather than to the abortion itself.^{348,349,350,351} However, methodological problems in one paper in particular³⁵² render the results essentially meaningless, a critique referring to its “*horrendous methodological contortions*.”³⁵³ Another more recent study by the same lead researcher similarly concluded that rather than depression being associated with abortion, or caused by it, instead “*it is possible that mental health problems may lead women to have unintended pregnancies and abortions*.”³⁵⁴ Again, serious flaws in the study design do not allow such a conclusion to be drawn.^{355,356}

Two recent studies by Jacob and co-workers in Germany used data linkage to identify the association between abortion and psychiatric disorders. The first analysed 57,770 women and found an increased risk for a range of disorders of between 75% and 101% compared with never pregnant women. Notably, if women already had a child, the risk after a subsequent abortion was even higher, suggesting that parenthood status influences the relationship between abortion and adverse mental health outcomes.³⁵⁷

The second study compared 17581 women who had aborted with the same number of women who had delivered a child, and found an increased risk of depression after abortion of 34%, but no increased risk of anxiety.³⁵⁸ In contrast, a US study of adolescents that compared women who aborted an unwanted pregnancy with those who delivered an unwanted pregnancy found no effect.³⁵⁹ In a similar study of adolescents, Jalanko found that both abortion and childbirth were equivalent risk factors for mood disorders as well as other psychiatric diagnoses when compared with teenagers who had not become pregnant.³⁶⁰

In a 2016 well-controlled study of 8005 American women, which attempted to replicate work by the New Zealand group, Sullins found a 30% elevated risk of depression and a 25% elevated risk of anxiety.³⁶¹ Sullins, like Coleman et al.³⁶², estimated that approximately 10% of the prevalence of mental health disorders in the community comes from induced abortion.

In 2019, Sullins undertook further research, using a large sample from the US National Longitudinal Survey of Adolescent to Adult Health that was specifically designed to assess differences in outcomes between women who aborted a wanted pregnancy versus an unwanted one, both compared to women who delivered a child. The findings revealed that overall,

340 Pedersen W (2008) *Op. Cit.*

341 Rees DI & Sabia JJ (2007) The relationship between abortion and depression: new evidence from the fragile families and child wellbeing study. *Medical Science Monitor* 13(10):CR430-6.

342 Coleman PK et al. (2009) Induced abortion and anxiety, mood, and substance abuse disorders: Isolating the effects of abortion in the national comorbidity survey. *J Psychiatric Research* 43:770-776.

343 Broen AN et al. (2005) *Op. Cit.*

344 Steinberg JR & Finer LB (2011) Examining the association of abortion history and current mental health: A reanalysis of the National Comorbidity Survey using a common-risk-factors model. *Social Science & Medicine* 72:72-82.

345 Warren JT et al. (2010) Do Depression and Low Self-Esteem Follow Abortion Among Adolescents? Evidence from a National Study. *Persp Sex Reprod Health* 42(4):230-235.

346 Olsson CA et al. (2013) Social and emotional adjustment following early pregnancy in young Australian women: a comparison of those who terminate, miscarry, or complete pregnancy. *J Adolesc Health* 54(6):698-703.

347 Leppälähti S et al. (2016) Is underage abortion associated with adverse outcomes in early adulthood? A longitudinal birth cohort study up to 25 years of age. *Hum Reprod* 31(9):2142-9.

348 Steinberg JR & Russo NF (2008) Abortion and anxiety: what's the relationship? *Social Science & Medicine* 67(2):238-52. Epub 2008 May 28.

349 Gissler M et al. (2010) Use of psychotropic drugs before pregnancy and the risk for induced abortion: population-based register-data from Finland 1996-2006. *BMC Public Health* 383:1-10.

350 Mota NP et al. (2010) Associations Between Abortion, Mental Disorders, and Suicidal Behaviour in a Nationally Representative Sample. *Canadian J Psychiatry* 55(4):239-247.

351 Steinberg JR et al. (2014) Abortion and Mental Health: Findings From the National Comorbidity Survey-Replication. *Obstet Gynecol* 123(201):263-270.

352 *Ibid.*

353 World Expert Consortium for Abortion Research and Education (2014) Steinberg's Latest Effort to Obscure the Well-Established Link Between Abortion and Women's Mental Health. See <http://wecareexperts.org/content/steinberg%E2%80%99s-latest-effort-obscure-well-established-link-between-abortion-and-women%E2%80%99s-mental-> Accessed 23 Apr 2020.

354 Steinberg JR et al. (2018) Examining the Association of Antidepressant Prescriptions With First Abortion and First Childbirth. *JAMA Psychiatry* 75(8):828-834.

355 Coleman PK (2018) JAMA Psychiatry Publishes More Questionable Science. World Expert Consortium for Abortion Research and Education. See <https://www.wecareexperts.org/content/jama-psychiatry-publishes-more-questionable-science> Accessed 19 Apr 2020.

356 See https://abortionrisks.org/index.php?title=Munk-Olsen_et_al Accessed 20 Apr 2020.

357 Jacob L et al. (2019) Association between induced abortion, spontaneous abortion, and infertility respectively and the risk of psychiatric disorders in 57,770 women followed in gynecological practices in Germany. *J Affective Disorders* 251:107-113.

358 Jacob L et al. (2019a) Relationship between induced abortion and the incidence of depression, anxiety disorder, adjustment disorder, and somatoform disorder in Germany. *J Psychiatric Research* 114:75-79.

359 Gomez AM (2018) *Op. Cit.*

360 Jalanko E et al. (2020) The Risk of Psychiatric Morbidity Following Teenage Induced Abortion and Childbirth - A Longitudinal Study From Finland. *J Adolescent Health* 66:345e351.

361 Sullins DP (2016) *Op. Cit.*

362 Coleman PK (2011) *Op. Cit.*

abortion elevated the risk of depression by 63%, and this risk was higher when the pregnancy was wanted compared to unwanted. The results were worse for suicidal ideation. Risk was increased by 138% for all abortions, that figure being split between a 94% elevated risk for unwanted pregnancies and 244% for wanted pregnancies.³⁶³

It is unsurprising that suicide risk is related to depression and anxiety, as well as to other disorders, and several other recent studies have added to the work by Sullins. In a unique study of postmenopausal women, suicidal ideation was increased in women who had had abortions many years earlier, even after controlling for a range of known risk factors for suicidal ideation, including depression itself.³⁶⁴ Moreover, the risk was greater for 3 or more abortions, and did not occur for miscarriages. Similarly, Luo found that the risk of suicidal ideation was nearly doubled in Chinese migrant workers after abortion even after controlling for depression, loneliness, anxiety and low self-esteem.³⁶⁵ The authors surmised that the risk may be related to increased risk-taking behaviours as a consequence of abortion.

In contrast, two other studies found no link between abortion and suicidal ideation. However, the first was derived from the Turnaway Study data, the flaws of which have already been discussed³⁶⁶, and the second used a narrow sample of women attempting suicide, did not control for well-known risk factors, and conflated self-harm with a suicide attempt.³⁶⁷

Although a very short-term investigation one week after abortion, Yilmaz et al found that symptoms of post abortion depression were more prevalent amongst those who had undergone a surgical abortion compared with a medical one.³⁶⁸

Post-traumatic Stress

A small proportion of women develop post traumatic stress disorder (PTSD) following abortion.^{369,370} This may be related to cultural factors.³⁷¹ More recent studies have confirmed an elevated risk of PTSD after abortion, which weakened but persisted after controlling for confounders.^{372,373} In one of these studies, abortions later in pregnancy were associated with higher PTSD scores³⁷⁴, and in a separate study, PTSD symptoms remained elevated after 3 years.³⁷⁵ Incidence of first psychiatric contact for neurotic, stress-related or somatoform disorder was elevated 2-3 months after an abortion.³⁷⁶

In a French study comparing surgical versus medical abortion, PTSD scores were not only high at 6 weeks after abortion, but higher in the medical abortion group, even though these women had less advanced pregnancies.³⁷⁷ In their review of 48 studies, Daugirdaite et al.³⁷⁸ concluded that “*Patients with advanced pregnancies, a history of previous traumas, mental health problems, and adverse psychosocial profiles should be considered as high risk for developing PTS [posttraumatic stress] and PTSD following reproductive loss.*” The risks of PTS and PTSD in this review were considered alongside other reproductive losses such as miscarriage, stillbirth, neonatal death, perinatal death, and failed IVF.

Finally, in a self-selected sample of women from Belarus, whom the authors considered to be “*highly traumatized*”, 50% were clinically diagnosed with PTSD.³⁷⁹ This was clearly not a representative sample, and yet does reveal the severity of trauma that can occur in women who attribute their suffering to their abortion. Moreover, 10% of women in the sample exhibited delayed PTSD triggered by “*subsequent gynecological problems*” that caused difficult emotions about the abortion to resurface.³⁸⁰

363 Sullins DP (2019) Affective and Substance Abuse Disorders Following Abortion by Pregnancy Intention in the United States: A Longitudinal Cohort Study. *Medicina* 55:741; doi:10.3390/medicina55110741

364 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* 58:153e158.

365 Luo M et al. (2018) Association between induced abortion and suicidal ideation among unmarried female migrant workers in three metropolitan cities in China: a cross-sectional study. *BMC Public Health* 18:625.

366 Biggs MA et al. (2018) Five-Year Suicidal Ideation Trajectories Among Women Receiving or Being Denied an Abortion. *Am J Psychiatry* 175:845-852.

367 Steinberg J et al. (2019) The association between first abortion and first-time non-fatal suicide attempt: a longitudinal cohort study of Danish population registries. *Lancet Psychiatry* 6(10):1031-1038.

368 Yilmaz N et al. (2010) Medical or surgical abortion and psychiatric outcomes. *J Maternal-Fetal & Neonatal Med* 23(6):541-544.

369 Rue VM et al. (2004) *Op. Cit.*

370 Broen AN et al. (2004) Psychological impact on women of miscarriage versus induced abortion: a 2-year follow-up study. *Psychosomatic Medicine* 66:265-271.

371 Rue VM et al. (2004) *Op. Cit.*

372 Mota NP et al. (2010) *Op. Cit.*

373 Coleman PK et al. (2010) Late-Term Elective Abortion and Susceptibility to Posttraumatic Stress Symptoms. *J Pregnancy* 2010:1-10.

374 Coleman PK et al. (2010) *Op. Cit.*

375 Curley M & Johnston C (2013) *Op. Cit.*

376 Munk-Olsen T et al. (2011) Induced first-trimester abortion and risk of mental disorder. *New Engl J Med* 364(4):332-9.

377 Rousset C et al. (2011) Posttraumatic stress disorder and psychological distress following medical and surgical abortion. *J Reprod & Infant Psychology* 29(5): 506-517.

378 Daugirdaite V et al. (2015) Posttraumatic stress and posttraumatic stress disorder after termination of pregnancy and reproductive loss: a systematic review. *J Pregnancy* vol. 2015, Article ID 646345. doi:10.1155/2015/646345.

379 Spedkhard A & Mufel N (2003) *Op. Cit.*

380 *Ibid.*

Substance Abuse and Self-harm

In 1995, a UK study identified an increase in deliberate self-harm after abortion, which includes substance abuse.³⁸¹ This was corroborated more recently in the study by Sullins³⁸² and also by Olsson et al.³⁸³ Among women whose first pregnancy was unintended, those who had an abortion were at greater risk of substance abuse compared with those who carried their unintended pregnancy to term.³⁸⁴ When pregnancy was assessed in relation to past perinatal loss - which included abortion, stillbirth and miscarriage - only abortion was found to be associated with an increased risk of substance abuse during that pregnancy.³⁸⁵ Other research has confirmed the relationship between abortion and substance abuse, perhaps as an attempt to cope with emotional loss.^{386,387,388} It may be that of all the mental health problems related to abortion, substance abuse might contribute most to the community mental health burden.^{389,390,391} This was confirmed in 2019 by Sullins who found that apart from suicidal ideation, substance abuse presented the highest post-abortion risk to women.³⁹²



Mental Health During a Subsequent Pregnancy

Several studies have investigated the impact of abortion on women's mental health during a subsequent pregnancy and found an association with depression, anxiety, PTSD, and substance abuse.^{393,394,395,396} Pregnancy may be a particularly vulnerable time for some women who may experience difficult thoughts and emotions about a past pregnancy that ended in abortion. A study by Holmlund et al. found no such association but suffered from similar selection bias as the Turnaway Study³⁹⁷, managing to recruit only 18.3% of women asked to participate. As in the Turnaway Study, women distressed by their past abortion would selectively remove themselves from the research.

Other Disorders

Several studies have identified other psychiatric complications following abortion. Women who have an abortion are at higher risk of psychiatric admission compared with women who carried to term.^{398,399} In a Californian study, women who had an abortion were over-represented in treatment categories that included bipolar disorder, neurotic depression and schizophrenic disorders.⁴⁰⁰ Nevertheless, a major UK study did not identify any difference in total psychiatric disorders between aborting women and those who carried to term.⁴⁰¹ With regard to bipolar disorders, some researchers have found an association⁴⁰², while others have not.⁴⁰³ Sleep disorders and disturbances are more common in women with a history of abortion.⁴⁰⁴

381 Gilchrist AC et al. (1995) Termination of pregnancy and psychiatric morbidity. *Brit J Psychiatry* 167:243-8.

382 Sullins DP (2016) *Op. Cit.*

383 Olsson CA (2013) *Op. Cit.*

384 Reardon DC et al. (2004) Substance use associated with unintended pregnancy outcomes in the National Longitudinal Survey of Youth. *Am J Drug & Alcohol Abuse* May 30(2):369-83.

385 Coleman PK et al. (2005) Substance use among pregnant women in the context of previous reproductive loss and desire for current pregnancy. *Brit J Health Psychology* 10:255-268.

386 Dingle K et al. (2008) Pregnancy loss and psychiatric disorders in young women: an Australian birth cohort study. *Brit J Psychiatry* 193:455-460.

387 Pedersen W (2007) Childbirth, abortion and subsequent substance use in young women: a population-based longitudinal study. *Addiction* 102(12):1971-8.

388 Coleman PK et al. (2009) *Op. Cit.*

389 Fergusson DM et al. (2009) *Op. Cit.*

390 Coleman PK et al. (2009) *Op. Cit.*

391 Mota NP et al. (2010) *Op. Cit.*

392 Sullins DP (2019) *Op. Cit.*

393 Hamama L et al. (2010) Previous experience of spontaneous or elective abortion and risk for posttraumatic stress and depression during subsequent pregnancy. *Depression & Anxiety* 27:699-707.

394 Gong X et al. (2013) Pregnancy loss and anxiety and depression during subsequent pregnancies: data from the C-ABC study. *Eur J Obstet Gynecol Reprod Biol* 166(1):30-6.

395 Giannandrea SAM et al. (2013) Increased risk for postpartum psychiatric disorders among women with past pregnancy loss. *J Womens Health(Larchmt)* 22(9):760-768.

396 Chojenta C et al. (2014) History of pregnancy loss increases the risk of mental health problems in subsequent pregnancies but not in the postpartum. *PLoS One* 9(4):e95038. doi: 10.1371/journal.pone.0095038.

397 Holmlund S et al. (2014) Psychological ill-being experienced by first-time mothers and their partners in pregnancy after abortion: a cohort study. *J Psychosom Obstet Gynaecol* 35(4):132-9.

398 Reardon DC et al. (2003) Psychiatric admissions of low-income women following abortion and childbirth. *Canadian Med Assoc J* 168(10):1253-6.

399 Munk-Olsen T et al. (2011) *Op. Cit.*

400 Coleman PK et al. (2002) State-funded abortions vs deliveries: a comparison of outpatient mental health claims over four years. *Am J Orthopsychiatry* 72:141-152.

401 Gilchrist AC et al. (1995) *Op. Cit.*

402 Coleman PK et al. (2009) *Op. Cit.*

403 Mota NP et al. (2010) *Op. Cit.*

404 Reardon DC & Coleman PK (2005) Relative treatment rates for sleep disorders and sleep disturbances following abortion and childbirth: a prospective record-based study. *Sleep* 28(12):1293-1294.

Several studies have identified relationship problems between couples where there has been a history of abortion, manifesting as sexual dysfunction.^{405,406,407,408} Furthermore, some evidence exists for a 'replacement pregnancy' phenomenon, where a subsequent pregnancy may be considered a way of resolving grief and stress about an abortion.⁴⁰⁹

Past Psychiatric History

Several studies have made the claim that it is not abortion per se that has an adverse impact on mental health outcomes, but instead women who access abortion already have poor mental health. For example, Danish researchers showed that the incidence of first psychiatric contact did not change pre versus post abortion.⁴¹⁰ However, there are significant weaknesses with the study, and others by the same group, that limit the conclusions that can be drawn.⁴¹¹

Nevertheless, Nilsen et al have identified a link between prior adolescent substance abuse and likelihood of having an abortion.⁴¹² In addition, work by Ditzhuijzen and co-workers has likewise found that women with a history of psychiatric ill health are over-represented among those who have abortions.^{413,414,415} Even so, caution needs to be applied, as for one of these studies⁴¹⁶ the response rate was just 13%, pointing to significant risk of selection bias.

Despite the controversy over this issue, as noted earlier, some women describe their own experiences of abortion as linked to mental harm.^{417,418,419,420}

The Special Case of Abortion for Foetal Abnormality

There is a solid body of evidence showing that when an abortion is undertaken for reasons of foetal abnormality the after-effects can be particularly traumatic.^{421,422,423} Health professionals need to be aware that strong and persisting grief is likely, similar to that experienced for a stillbirth, but with the additional factor that the abortion was chosen.^{424,425,426}

Most women undergoing such procedures experience a range of difficult emotions including sadness, meaninglessness, loneliness, tiredness, grief, anger and frustration.⁴²⁷

Prior to late termination, women report feeling guilt, fear, anguish, unreality, relief, desperation, emptiness, and other conflicting emotions. 40% of women had only negative emotions.⁴²⁸

In a Scottish study, a majority of men and women experienced negative emotional responses and somatic complaints, including problems in their sexual relationships.⁴²⁹ Among women, 40% experienced coping problems lasting more than 12 months. But the effects can last much longer. For example, Dutch researchers found that grief and post-traumatic

405 Coleman PK et al. (2009) Induced abortion and intimate relationship quality in the Chicago Health and Social Life Survey, *Public Health* 123:331-338.

406 Verit FF & Verit A (2008) A Turkish study of prevalence and risk factors for low sexual function in women. *J Sexual Med* 5(12):2973-2974.

407 Bianchi-Demicheli F et al. (2002) Termination of pregnancy and women's sexuality. *Gynecologic & Obstetric Investigation* 53(1):48-53.

408 Coleman PK et al. (2010) *Op. Cit.*

409 Coleman PK et al. (2002) *Op. Cit.*

410 Munk-Olsen T et al. (2011) *Op. Cit.*

411 Reardon DC (2015) Postpartum mental health study flawed by fetal loss omission. *Scand J Primary Health Care* 33(4):318-319.

412 Nilsen W et al. (2012) Adolescent depressive symptoms and subsequent pregnancy, pregnancy completion and pregnancy termination in young adulthood: findings from the Victorian adolescent health cohort study. *J Pediatr Adolesc Gynecol* 25(1):6-11.

413 van Ditzhuijzen J et al. (2013) Psychiatric history of women who have had an abortion. *J Psychiatr Res* 47(11):1737-43

414 van Ditzhuijzen J et al. (2015) The impact of psychiatric history on women's pre- and postabortion experiences. *Contraception* 92(3):246-53.

415 van Ditzhuijzen J et al. (2017) Incidence and recurrence of common mental disorders after abortion: Results from a prospective cohort study. *J Psychiatr Res* 84:200-206.

416 van Ditzhuijzen J et al. (2013) *Op. Cit.*

417 Goodwin P & Ogden J (2007) Women's reflections upon their past abortions: an exploration of how and why emotional reactions change over time. *Psychology & Health* 22(2):231-248.

418 Trybulski J (2005) *Op. Cit.*

419 Trybulski J (2006) *Op. Cit.*

420 Fergusson DM et al. (2009) Reactions to abortion and subsequent mental health. *Brit J Psychiatry* 195:420-426.

421 Koponen K et al. (2013) Parental and professional agency in terminations for fetal anomalies: analysis of Finnish women's accounts. *Scand J Disability Res* 15(1):33-44.

422 Lafarge C et al. (2013) Women's experiences of coping with pregnancy termination for fetal abnormality. *Qualitative Health Res* 23(7):924-936.

423 Coleman PK (2015) Diagnosis of fetal anomaly and the increased maternal psychological toll associated with pregnancy termination. *Issues in Law and Medicine* 10(1):3-23.

424 Elder SH & Laurence KM (1991) The impact of supportive intervention after second trimester termination of pregnancy for fetal abnormality. *Prenatal Diagnosis* 11:47-54.

425 Zeanah C et al. (1993) Do women grieve after terminating pregnancies because of fetal anomalies? A controlled investigation. *Obstet & Gynecol* 82:270-5.

426 Salvesen KA et al. (1997) Comparison of long-term psychological responses of women after pregnancy termination due to fetal anomalies and after perinatal loss. *Ultrasound in Obstet & Gynecol* Feb, 9(2):80-5.

427 Asplin N et al. (2014) Pregnancy termination due to fetal anomaly: Women's reactions, satisfaction and experiences of care. *Midwifery* 30:620-627.

428 Andersson IM et al. (2014) Experiences, feelings and thoughts of women undergoing second trimester medical termination of pregnancy. *PLOS One* Dec 29, DOI:10.1371.

429 White-Van Mourik MCA et al. (1992) *Op. Cit.*

symptoms remained between 2 and 7 years after the event.⁴³⁰ In the same study, greater psychological distress was experienced by women when the foetus was at a more advanced gestational age. Other researchers found, contrary to expectations, that traumatic stress at 4 years was not significantly different to that experienced at 14 days.⁴³¹ Recent research by the same group⁴³² has shown, using functional MRI, that the neural activation pathways underlying grief in women who terminated their pregnancies because of foetal abnormality are the same as those involved in physical pain.

More recent prospective research has identified adverse experiences following abortion for foetal anomaly. At four months, 8.8% experienced grief, 45.8% showed symptoms of posttraumatic stress, 12.2% exhibited psychological malfunctioning, and 27.9% had depression.⁴³³ These symptoms declined over the following year.

Sometimes, during medical abortion for foetal abnormality, a baby is born alive. In the UK, live births following abortion were reported in 2.2% of abortions for foetal abnormality overall, and 4.8% of abortions without prior feticide. When an infant is live born after termination, the baby is provided with comfort care until death in the delivery suite, usually around one hour after birth.⁴³⁴

Abortion Statistics for New Zealand

In 2019 (the most recent statistics available at time of writing), there were 12,857 abortions in NZ, 9.6% of which were for non-residents. This translates to an age-standardised abortion rate of 13.1 per 1000 women of reproductive age (15 - 44 years old). There has been a steady decline from a peak of 18,511 abortions in 2003 and the reasons for the fall are disputed. The most significant decline has been for women under the age of 25; for women aged 25-39 the decline reversed in 2014 and the numbers have been steadily increasing since.

A majority of women having abortions had a previous live birth (58%), and 36% had already had 1 or more abortions.

Most abortions occur before the end of the 12th week (90%), by surgical means (72%), and the formal reason for the overwhelming majority of abortions falls within the category 'danger to mental health' (97.2%). 206 abortions (1.6%) involved a handicapped child, 35 (0.22%) involved danger to the woman's life and/or physical health, and 22 (0.17%) involved sexual violation.

In approximately 0.6% of abortions there were complications reported that adversely affected the mother's health, such as retained placenta or foetus, haemorrhage, or perforation of the uterus.⁴³⁵

Summary

Abortion is associated with a wide range of adverse physical and psychological outcomes. While research proving causality is limited, and much research in this field is yet to be conducted, there is already a large body of evidence describing the adverse outcomes. Women are entitled to be made aware of all the associated risks. Furthermore, because women who present for abortion are often ambivalent, and ambivalence is a known risk factor for later adverse effects, it is imperative that health professionals provide all relevant information. The nature of abortion, with its complex medical, social, legal and ethical dimensions demands extra care on the part of health professionals.



430 Korenromp MJ *et al.* (2005) *Op. Cit.*

431 Kersting A *et al.* (2005) Trauma and grief 2-7 years after termination of pregnancy because of fetal anomalies – a pilot study. *J Psychosomatic Obstet & Gynecol* 26(1):9-15.

432 Kersting A *et al.* (2009) Neural Activation Underlying Acute Grief in Women After the Loss of an Unborn Child. *Am J Psychiatry* 166:1402-1410.

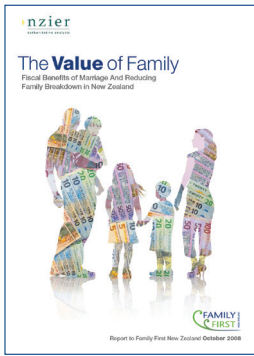
433 Korenromp MJ *et al.* (2009) Adjustment to termination of pregnancy for fetal anomaly: a longitudinal study in women at 4, 8, and 16 months, *Am J Obstet & Gynecol* 160:e1-7.

434 Draper ES *et al.* (2012) An investigation into the reporting and management of late terminations of pregnancy (between 22+0 and 26+6 weeks of gestation within NHS Hospitals in England in 2006: the EPICure preterm cohort study. *BJOG* 119:710-715.

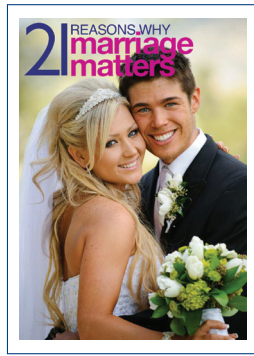
435 Stats NZ (2020) Abortion statistics: Year ended December 2019, *Op. Cit.*

OTHER RESEARCH PUBLISHED BY FAMILY FIRST NZ

Available on our website: FamilyFirst.nz



Family Breakdown: 2008



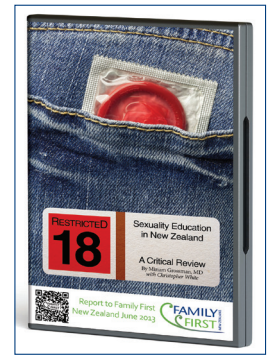
Marriage: 2009



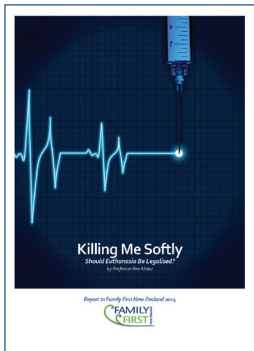
Drinking Age: 2011



Daycare: 2012



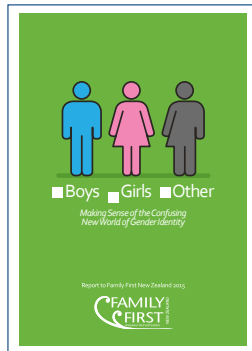
Sex Education: 2013



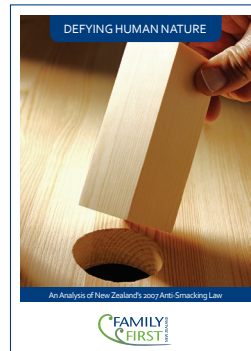
Euthanasia: 2014



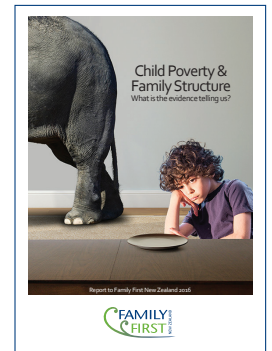
Screen time: 2015



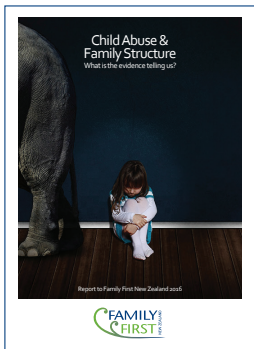
Gender Identity: 2015



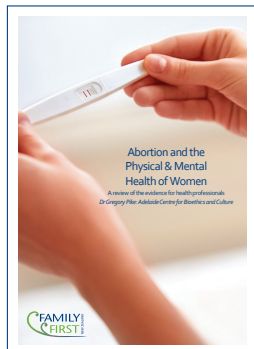
Anti-Smacking Law: 2016



Child Poverty: 2016



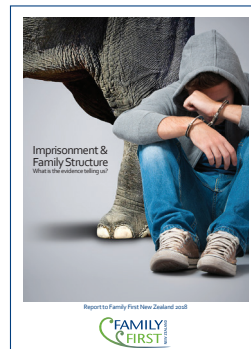
Child Abuse: 2016



Abortion & Health: 2018



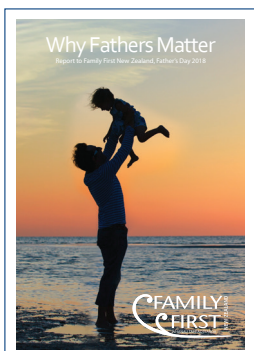
Why Mothers Matter: 2018



Imprisonment: 2018



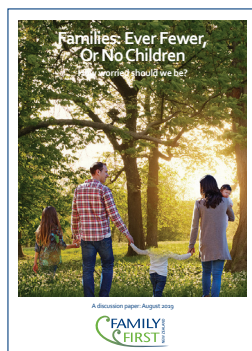
Dinner & Family Life: 2018



Why Fathers Matter: 2018



Children Transitioning: 2018



Fertility: 2019



Parent Guide – Gender: 2019



Anti-Smacking Law: 2020