

ABORTION AND WOMEN'S HEALTH

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

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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 common,² 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 many countries over the past few 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.

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 studies,⁹ or refuse to participate. Moreover, many studies of the physical risks of abortion include only healthy women,¹⁰ 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 do not need hospital admitting privileges¹¹ or ambulatory surgical standards,¹² 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

¹ “In 2019, 98% of abortions (202,975) were performed under ground C. A further 2% were carried out under ground E (3,183 abortions, a decrease of 86 since 2018), with 1% (1,045 abortions) under ground D. The remaining grounds account for very few abortions; 181 in total across grounds A, B, F and G. (Table 2). Most of the overall increase in the number of abortions is the result of ground C abortions increasing.” Abortion Statistics for England and Wales: 2019, Department of Health and Social Care, 11 June 2020 <https://www.gov.uk/government/statistics/abortion-statistics-for-england-and-wales-2019>

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.

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 *Ibid.*

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).

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.

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, 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

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.

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.

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 the care of the UK government, 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 partner,³³ late diagnosis of pregnancy, and lack of certainty about being pregnant.^{34,35} The reasons why women find the decision

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 & Wijnen 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.

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 between ambivalence and the potential development of long-term post-abortion psychological distress,⁴⁰ 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 emotions,⁴⁶ psychological distress,⁴⁷ 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

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

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

³⁸ Törnborn 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.

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.

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

Throughout Europe and Australia 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 deselects them.⁵⁷ With the advent of technological advances 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 pregnancy with a Down's syndrome diagnosis said that if testing had not occurred and the child with Down's syndrome 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] the accept responsibility", one respondent saying, "You kind of become master of life a death."⁶⁴

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.

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.*

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, 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

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 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.

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}

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

⁷⁷ H 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.*

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.

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 and 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.

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

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. In 2014, medical abortions overtook surgical abortions in England and Wales for the first time¹⁰⁴, and in 2019, 73% of all abortions were medically induced.¹⁰⁵

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%).¹⁰⁶ 62% of women taking Mifepristone (RU486)/Misoprostol and 48% of those taking Misoprostol alone experienced pain they described as severe.¹⁰⁷

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.¹⁰⁸

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 2015.¹⁰⁹ The abortion complication rate also increases rapidly with each week of gestation, one study finding a 38% increase for each week.¹¹⁰ 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.¹¹¹ For 77-100 days the figure rose to 22.5%.¹¹² Nevertheless, abortion providers and many researchers describe abortion in simplistic terms as safe and effective.^{113,114} It should be noted that some patients may not return with complaints, and abortion clinic staff may be motivated to conceal poor outcomes.¹¹⁵

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 for England and Wales: 2019, *Department of Health and Social Care*, 11 June 2020 <https://www.gov.uk/government/statistics/abortion-statistics-for-england-and-wales-2019>

¹⁰⁶ Product monograph including patient medication information. Mifegymiso. Revised October 21, 2016. See https://pdf.hres.ca/dpd_pm/00036826.PDF Accessed 22 May 2018.

¹⁰⁷ 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.

¹⁰⁸ Fiala C & Gemzell-Danielsson K (2006) Review of medical abortion using mifepristone in combination with a prostaglandin analogue. *Contraception* 74:66–86.

¹⁰⁹ Carlsson I *et al.* (2018) Complications related to induced abortion: a combined retrospective and longitudinal follow-up study. *BMC Women's Health* 18:158.

¹¹⁰ Bartlett LA *et al.* (2004) Risk factors for legal induced abortion-related mortality in the United States. *Obstet Gynecol* 103:729–737.

¹¹¹ 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.

¹¹² 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.

¹¹³ Cleland K *et al.* (2013) Significant adverse events and outcomes after medical abortion. *Obstet Gynecol* 121(1):166-171.

¹¹⁴ Trussell J *et al.* (2014) Reduction in infection-related mortality since modifications in the regimen of medical abortion. *Contraception* 89(3):193-196.

¹¹⁵ 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.¹¹⁶ 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.¹¹⁷ Blood transfusion rates after medical abortion vary from study to study, and were up to 0.6% for gestations between 57 and 63 days.¹¹⁸

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%.¹¹⁹ A 2015 systematic review, co-authored by a Danco¹²⁰ consultant, concluded that outpatient medical abortion regimens up to 70 days gestation are highly effective and severe adverse events are uncommon¹²¹. However, a recent study found that 6.2% of early medical abortions required surgical intervention.¹²²

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%.¹²³ Reported rates of actual infections after surgical abortions range from 0.1% to 4.7%.¹²⁴ Importantly, across surgical and medical abortions, even after screening and using prophylactic antibiotics, 1.4% of women still develop a post-abortal 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. Eight of these were confirmed as associated with sepsis, the remaining deaths being attributed to multiple causes in association with Mifepristone.¹²⁵ 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.¹²⁶ 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”.¹²⁷

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.¹²⁸

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.¹²⁹ 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:

¹¹⁶ Niinimaki M et al. (2009) Immediate Complications After Medical Compared With Surgical Termination of Pregnancy. *Obstet Gynecol* 114:795-804.

¹¹⁷ 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.

¹¹⁸ Winikoff B et al. (2012) Extending Outpatient Medical Abortion Services Through 70 Days of Gestational Age. *Obstet Gynecol* 120:1070-1076.

¹¹⁹ Raymond EG et al. (2013) First-trimester medical abortion with mifepristone 200mg and misoprostol: a systematic review. *Contraception* 87:26-37.

¹²⁰ Danco distribute the abortion drug Mifeprex in the USA.

¹²¹ Chen MJ & Creinin MD (2015) Mifepristone with buccal misoprostol for medical abortion: a systematic review. *Obstet & Gynecol* 126(1):12-21.

¹²² Meaidi A et al. (2019) Risk factors for surgical intervention of early medical abortion. *Am J Obstet Gynecol* 220:478:e1-15.

¹²³ Shannon C et al. (2004) Infection after medical abortion: a review of the literature. *Contraception* 70:183-190.

¹²⁴ Cited by Kruse B et al. (2000) *Op. Cit.*

¹²⁵ 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>

¹²⁶ Niinimaki M et al. (2009) *Op. Cit.*

¹²⁷ 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.

¹²⁸ 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.

¹²⁹ Cappiello J et al. (2014) Women's experience of decision-making with medication abortion. *MCN Am J Matern Child Nursing* 39(5):325-330.

“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.¹³⁰ 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.¹³¹

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.^{132,133} 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...”¹³⁴

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’.¹³⁵ 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.”¹³⁶

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.^{137,138,139} 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 behaviours,¹⁴⁰ and “...self-aware, introspective women specifically attribute

¹³⁰ 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.

¹³¹ Akin A *et al.* (2004) Results and lessons learned from a small medical abortion clinical study in Turkey. *Contraception* 70:401–406.

¹³² Bartz D & Goldberg A (2009) Medication Abortion. *Clin Obstet Gynecol* 52(2):140-150.

¹³³ 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.

¹³⁴ *Ibid.*

¹³⁵ World Health Organization (2004) *Definitions of Maternal Death. Beyond the numbers: Reviewing maternal deaths and complications to make pregnancy safer*, Geneva, 2004.

¹³⁶ 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.

¹³⁷ 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.

¹³⁸ 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.

¹³⁹ Gissler M *et al.* (1996) Suicides after pregnancy in Finland, 1987-94: register linkage study. *Brit Med J* 313:1431-4.

¹⁴⁰ 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.

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.”¹⁴¹

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.¹⁴²

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.¹⁴³

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 among non-pregnant women.¹⁴⁴ 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.¹⁴⁵ 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.¹⁴⁶

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.¹⁴⁷ 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.^{148,149}

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

¹⁴¹ Reardon DC & Thorp JM (2017) *Op. Cit.*

¹⁴² 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.

¹⁴³ 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.

¹⁴⁴ 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.

¹⁴⁵ Gissler M *et al.* (2004) *Op. Cit.*

¹⁴⁶ 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.

¹⁴⁷ Raymond EG & Grimes DA (2012) The comparative safety of legal induced abortion and childbirth in the United States. *Obstet Gynecol* 119:215-9.

¹⁴⁸ 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.

¹⁴⁹ 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.

pregnancy) through causes associated with, or exacerbated by, pregnancy. Maternal deaths¹⁵⁰ 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.¹⁵¹ 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.¹⁵² Even global WHO data on maternal mortality has been criticised for errors, its figures being called “implausibly low” due to underreporting.¹⁵³ 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.¹⁵⁴ 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.¹⁵⁵

Risk of death resulting directly from complications during abortion is rare, but increases with each week of gestation.¹⁵⁶ 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.¹⁵⁷ 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, doctors fail to report recent or current pregnancies on a minimum of 50% of death certificates.¹⁵⁸ 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.¹⁵⁹ Women who have abortions may already take more risks or

¹⁵⁰ 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.

¹⁵¹ Coleman PK et al. (2012) *Op. Cit.*

¹⁵² Gerdts C et al. (2013) Measuring unsafe abortion-related mortality: a systematic review of the existing methods. *PLoS One* 8(1):e53346.

¹⁵³ Gerland P et al. (2015) Correspondence: Maternal mortality estimates. *The Lancet* 384(9961):2211.

¹⁵⁴ Say L et al. (2014) *Op. Cit.*

¹⁵⁵ 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.

¹⁵⁶ Diedrich J & Steinauer J (2009) Complications of surgical abortion. *Clin Obstet & Gynecol* 52(2):205-212.

¹⁵⁷ Gerdts C et al. (2015) Measuring abortion-related mortality: challenges and opportunities. *Reproductive Health* 12:87.

¹⁵⁸ 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.

¹⁵⁹ 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.

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.¹⁶⁰

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”.¹⁶¹

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.¹⁶² In the US the rate is 10% and highest amongst black Americans,¹⁶³ who also have much higher abortion rates.¹⁶⁴

Numerous studies have identified an increased risk of premature delivery as a result of abortion.^{165,166,167,168,169,170} This includes several meta-analyses.^{171,172,173,174} 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.^{175,176,177}

The proposed mechanism for increased risk is cervical damage from instrumentation, or as a result of abortion-induced infection.^{178,179,180} 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.¹⁸¹

¹⁶⁰ Reardon DC et al. (2002) *Op. Cit.*

¹⁶¹ Reardon DC & Thorp JM (2017) *Op. Cit.*

¹⁶² 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>

¹⁶³ See <https://www.marchofdimes.org/Peristats/ViewTopic.aspx?reg=99&top=3&lev=0&slev=1> Accessed 19 May 2020.

¹⁶⁴ See https://abort73.com/abortion/abortion_and_race/ Accessed 19 May 2020.

¹⁶⁵ 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.

¹⁶⁶ 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.

¹⁶⁷ 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.

¹⁶⁸ Van Oppenraaij RH et al. (2009) *Op.Cit.*

¹⁶⁹ Scholten B et al. (2013) The influence of pregnancy termination on the outcome of subsequent pregnancies: a retrospective cohort study. *BMJ Open* 3:e002803.

¹⁷⁰ 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.

¹⁷¹ 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.

¹⁷² 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.

¹⁷³ 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.

¹⁷⁴ 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>.

¹⁷⁵ 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.

¹⁷⁶ 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.

¹⁷⁷ 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.

¹⁷⁸ *Ibid.*

¹⁷⁹ Saccone G et al. (2016) *Op. Cit.*

¹⁸⁰ Malosso ERM et al. (2018) US trends in abortion and preterm birth. *J Maternal-Fetal & Neonatal Med* 31(18):2463-2467.

¹⁸¹ Lemmers M et al. (2016) *Op. Cit.*

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.¹⁸² 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.¹⁸³ 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.¹⁸⁴

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.¹⁸⁵ 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 abortion.¹⁸⁶ 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 birth,¹⁸⁷ 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.¹⁸⁸ 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.¹⁸⁹ 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.¹⁹⁰ 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.¹⁹¹

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.¹⁹²

¹⁸² 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.

¹⁸³ Makhoulf MA et al. (2014) Adverse pregnancy outcomes among women with prior spontaneous or induced abortions. *Am J Perinatol* 31(9):765-772.

¹⁸⁴ Scholten BL et al. (2013) The influence of pregnancy termination on the outcome of subsequent pregnancies: a retrospective cohort study. *BMJ Open* 3:e002803.

¹⁸⁵ Bhattacharya S et al. (2012) Reproductive outcomes following induced abortion: a national register-based cohort study in Scotland. *BMJ Open* 2:e000911.

¹⁸⁶ 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).

¹⁸⁷ Ancel PY et al. (2004) *Op. Cit.*

¹⁸⁸ Virk J et al. (2007) Medical Abortion and the Risk of Subsequent Adverse Pregnancy Outcomes. *N Engl J Med* 357:648-53.

¹⁸⁹ Liao H et al. (2011) Repeated medical abortions and the risk of preterm birth in the subsequent pregnancy. *Arch Gynecol Obstet* 284:579-586.

¹⁹⁰ McCaffrey MJ (2017) The Burden of Abortion and the Preterm Birth Crisis. *Issues in Law & Medicine* 32(1):73-98.

¹⁹¹ Basso O (2015) Invited Commentary: Induced abortion and the risk of preeclampsia in a subsequent pregnancy. *Am J Epidemiol* 182(8):670-672.

¹⁹² 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^{193,194,195,196,197,198,199,200,201} and some showing none.^{202,203,204,205,206} The field remains in dispute^{207,208} 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.²⁰⁹ In 2013 however, the American College of Pediatricians 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.²¹⁰

The College, along with others,²¹¹ 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.²¹² 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.²¹³ Another recent meta-analysis came to a different conclusion and found no effect, except for

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- ¹⁹³ 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.
- ¹⁹⁴ Daling JR et al. (1994) Risk of breast cancer among young women: relationship to induced abortion. *J National Cancer Inst* 86(21):1584-92.
- ¹⁹⁵ Daling JR et al. (1996) Risk of breast cancer among white women following induced abortion. *Am J Epidemiol* 144(4):373-80.
- ¹⁹⁶ 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.
- ¹⁹⁷ 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.
- ¹⁹⁸ 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.
- ¹⁹⁹ 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.
- ²⁰⁰ 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.
- ²⁰¹ 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.
- ²⁰² 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.
- ²⁰³ Ye Z et al. (2002) Breast cancer in relation to induced abortions in a cohort of Chinese women. *Brit J Cancer* 87:977-981.
- ²⁰⁴ Beral V et al. (2004) Op. Cit.
- ²⁰⁵ 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.
- ²⁰⁶ 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.
- ²⁰⁷ Brind J (2009) The abortion-breast cancer connection. *Specialty Law Digest. Health Care Law* 340:9-35.
- ²⁰⁸ Rowlands S (2011) Misinformation on abortion. *Eur J Contraception & Reprod Health Care* 16(4):233-40.
- ²⁰⁹ Phillips KA et al. (2014) Abortion and breast cancer risk for Australian women. *Med J Aust* 201(7):381.
- ²¹⁰ American College of Pediatricians (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.
- ²¹¹ 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.
- ²¹² Brind J (2017) Abortion-Breast Cancer Link (ABC Link): Review of Recent Evidence from Asia. *Issues in Law and Medicine* 32(7):325-333.
- ²¹³ 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.

women who had already had a live birth, where the risk was elevated by 11%.²¹⁴ 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.^{215,216} 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.

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.^{217,218,219} 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^{220,221} whereas other studies found no effect, or a possible effect if the study population had been larger.^{222,223,224,225,226}

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 abortion²²⁷, and the other found that women who had aborted their first pregnancy had a 14% decline in fertility that was not statistically significant.²²⁸ 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.²²⁹

²¹⁴ Deng Y *et al.* (2018) Induced abortion and breast cancer. An updated meta-analysis. *Medicine* 97:3(e9613).

²¹⁵ 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.

²¹⁶ Russo IH & Russo J (2011) Pregnancy-induced changes in breast cancer risk. *J Mammary Gland Biology & Neoplasia* 16(3):221-33.

²¹⁷ Abortion risks, NHS. See <https://www.nhs.uk/conditions/abortion/risks/> Accessed 15 Aug 2019.

²¹⁸ 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.

²¹⁹ 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.

²²⁰ Trichopoulos D *et al.* (1976) Induced Abortion and Secondary Infertility. *Brit J Obstet Gynaecol* 83:645-650.

²²¹ Tzonou A *et al.* (1993) Induced abortions, miscarriages, and tobacco smoking as risk factors for secondary infertility. *J Epidemiol Comm Health* 47:36-39.

²²² Daling JR *et al.* (1981) Role of Induced Abortion in Secondary Infertility. *Obstet Gynecol* 57(1):59-61.

²²³ Daling JR *et al.* (1985) Tubal infertility in relation to prior induced abortion. *Fertility & Sterility* 43(3):389-394.

²²⁴ Obel EB (1979) Fertility Following Legally Induced Abortion. *Acta Obstetrica et Gynecologica Scandinavica* 58(6):539-542.

²²⁵ Dalaker K *et al.* (1979) Delayed reproductive complications after induced abortion. *Acta Obstetrica et Gynecologica Scandinavica* 58(5):491-494.

²²⁶ Stubblefield PG *et al.* (1984) Fertility after induced abortion: a prospective follow up study. *Obstet Gynecol* 62(2):186-193.

²²⁷ 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.

²²⁸ Frank P *et al.* (1993) The effect of induced abortion on subsequent fertility. *Brit J Obstet Gynaecol* 100:575-580.

²²⁹ Hassan MAM & Killick SR (2005) Is previous aberrant reproductive outcome predictive of subsequently reduced fecundity? *Human Reproduction* 20(3):657-664.

A series of studies from China identified a link,²³⁰ but this could not be confirmed by a more recent Chinese study.²³¹ 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.²³²

Two recent studies from Taiwan both identified an increased risk of infertility as a result of abortion.^{233,234} 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.

Abortion is known to cause cervical damage,²³⁵ infections that lead to pelvic inflammatory disease (PID),²³⁶ incomplete abortion that causes infections and follow up surgery,²³⁷ intrauterine adhesions (IUAs),²³⁸ and endometrial thinning.^{239,240} In turn, each of these has been shown to lead to infertility – cervical damage,²⁴¹ PID,²⁴² IUAs,²⁴³ and endometrial thinning.²⁴⁴ Furthermore, whilst more controversial, a pathway from abortion to adverse mental health to infertility is theoretically possible.²⁴⁵

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.²⁴⁶ 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.

²³⁰ 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.

²³¹ Chen X et al. (2008) *Op. Cit.*

²³² Philippov OS et al. (1998) Estimation of the prevalence and causes of infertility in Western Siberia. *Bulletin World Health Org* 76(2):183-187.

²³³ 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).

²³⁴ 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.

²³⁵ See <https://www.nhs.uk/conditions/abortion/risks/> Accessed 15th Aug 2019.

²³⁶ 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.

²³⁷ Mentula M et al. (2018) Intrauterine adhesions following an induced termination of pregnancy: a nationwide cohort study. *BJOG* 125:1424–1431.

²³⁸ 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.

²³⁹ 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.

²⁴⁰ Wang Y et al. (2018) Association between induced abortion history and later in vitro fertilization outcomes. *Int J Gynecol Obstet* 141:321–326.

²⁴¹ <https://www.nhs.uk/conditions/infertility/causes/>

²⁴² Brunham RC et al. (2015) Pelvic Inflammatory Disease. *N Engl J Med* 372:2039-2048. DOI: 10.1056/NEJMra1411426

²⁴³ Schenker JG (1996) Etiology of and therapeutic approach to synechia uteri. *European J Obstet & Gynecol & Reprod Biol* 65:109-113.

²⁴⁴ 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.

²⁴⁵ 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.

²⁴⁶ See footnote 14 re Montgomery v Lanarkshire.

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.^{247,248} Beyond inference, criteria such as those developed by Bradford-Hill²⁴⁹ have been applied to make a case for causality.²⁵⁰ 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.^{251,252,253} 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.²⁵⁴

Reviews

Reviews have arrived at disparate conclusions^{255,256,257,258,259,260,261} highlighting that the field is riven with disagreement^{262,263} 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 (RCOG) concluded that there was no link between abortion and adverse mental health outcomes.²⁶⁴ 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.²⁶⁵

²⁴⁷ Ni 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.

²⁴⁸ 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.

²⁴⁹ Bradford-Hill A (1965) The environment and disease: association or causation? *Proc Royal Soc Med* 58:295-300.

²⁵⁰ Fergusson DM *et al.* (2008) *Op. Cit.*

²⁵¹ Whitney DK (2017) Emotional Sequelae of Elective Abortion: The Role of Guilt and Shame. *J Pastoral Care & Counseling* 71(2):98-105.

²⁵² 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.

²⁵³ 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.

²⁵⁴ 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.

²⁵⁵ American Psychological Association (2008) *Report on the Task Force on Mental Health and Abortion*. Washington DC.

²⁵⁶ Charles VE *et al.* (2008) Abortion and long-term mental health outcomes: a systematic review of the evidence. *Contraception* 78:436-450.

²⁵⁷ Major B *et al.* (2009) Abortion and Mental Health: Evaluating the Evidence. *American Psychologist* 64(9):863-890.

²⁵⁸ Coleman PK (2011) *Op. Cit.*

²⁵⁹ Cameron S (2010) Induced abortion and psychological sequelae. *Best Practice & Res Clin Obstet & Gynaecol* 24:657-665.

²⁶⁰ Casey PR (2010) Abortion among young women and subsequent life outcomes. *Best Practice & Res Clin Obstet & Gynaecol* 24:491-502.

²⁶¹ Steinberg JR & Rubin LR (2014) Psychological aspects of contraception, unintended pregnancy, and abortion. *Policy Insights Behav & Brain Sciences* 1(1):239-247.

²⁶² Steinberg JR *et al.* (2012) Fatal flaws in a recent meta-analysis on abortion and mental health. *Contraception* 86:430-437

²⁶³ 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.

²⁶⁴ 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.

²⁶⁵ Coleman PK (2017) Post-Abortion Mental Health Research: Distilling Quality Evidence from a Politicized Professional Literature. *J American Physicians & Surgeons* 22(2):38-43.

One of the participants invited by RCOG 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.”²⁶⁶

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.²⁶⁷

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.²⁶⁸ 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^{269,270,271}, 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.²⁷²

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.”²⁷³

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.²⁷⁴

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

²⁶⁶ Ney P (2013) A Common Sense Scientific Critique of the NCCMH and Royal College of Psychiatry Review. *WebmedCentral Reproduction* 4(10):WMC004429

²⁶⁷ Coleman PK (2017) *Op. Cit.*

²⁶⁸ Bellieni CV & Buonocore G (2013) Abortion and subsequent mental health: Review of the literature. *Psychiatry & Clin Neurosciences* 67:301-310.

²⁶⁹ Stotland NL (2011) Induced abortion and adolescent mental health. *Curr Opin Obstet Gynecol* 23:340-3.

²⁷⁰ Robinson GE *et al.* (2009) Is there an “abortion trauma syndrome”? Critiquing the evidence. *Harv Rev Psychiatry* 17:268-290.

²⁷¹ National Collaborating Centre for Mental Health (2011) *Op. Cit.*

²⁷² Kelly K (2014) The spread of ‘Post Abortion Syndrome’ as social diagnosis. *Social Sci & Med* 102:18-25.

²⁷³ Coleman PK (2012) Author reply to “Abortion and mental health: guidelines for proper scientific conduct ignored.” *Brit J Psychiatry* 200:74-83.

²⁷⁴ 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.

simply equates with a pregnancy being unwanted.^{275,276,277,278,279} 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.²⁸⁰ 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 not,²⁸¹ 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.²⁸²

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^{283,284,285} perceived stress and emotional support,²⁸⁶

²⁷⁵ 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.

²⁷⁶ 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.

²⁷⁷ Barrett G & Wellings K (2002) What is a ‘planned’ pregnancy? empirical data from a British study. *Social Science & Med* 55:545-557.

²⁷⁸ Kirkman M *et al.* (2010) *Op. Cit.*

²⁷⁹ Williams L *et al.* (2001) Pregnancy wantedness: attitude stability over time. *Social Biology* 48(3):212-233.

²⁸⁰ Gomez AM (2018) Abortion and subsequent depressive symptoms: an analysis of the National Longitudinal Study of Adolescent Health. *Psychological Medicine* 48:294-304.

²⁸¹ Fergusson DM *et al.* (2013) Abortion and mental health: A response to Romans and Steinberg. *Aust N Z J Psychiatry* 47(12):1201-1203.

²⁸² For a full list, see <https://www.ansirh.org/research/abortion>

²⁸³ 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.

²⁸⁴ Rocca CH *et al.* (2015) Decision Rightness and Emotional Responses to Abortion in the United States: A Longitudinal Study. *PLoS ONE* 10(7): e0128832.

²⁸⁵ 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>.

²⁸⁶ 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).

substance use and/or abuse^{287,288,289,290,291} self-esteem or life satisfaction,²⁹² partner relationship^{293,294} depression, anxiety and post-traumatic stress^{295,296,297,298} and aspirational plans.²⁹⁹ The study authors also claim that decisional certainty is high and no different to that involved in any other medical decision.^{300,301,302}

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 abortion,³⁰³ 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 design,³⁰⁴

²⁸⁷ N Roberts SC & Foster DG (2014) Receiving versus being denied an abortion and subsequent tobacco use. *Matern Child Health J* 19(3):438–46.

²⁸⁸ Roberts SCM *et al.* (2014) Receiving versus being denied an abortion and subsequent drug use. *Drug Alcohol Depend* 134:63–70.

²⁸⁹ 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.

²⁹⁰ 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.

²⁹¹ 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.

²⁹² Biggs MA *et al.* (2014) Does abortion reduce self-esteem and life satisfaction? *Qual Life Res* 23(9):2505–13.

²⁹³ 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.

²⁹⁴ 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.

²⁹⁵ Biggs MA *v* (2016) Does abortion increase women's risk for posttraumatic stress? Findings from a prospective longitudinal cohort study. *BMJ Open* 2016;6:e009698.

²⁹⁶ 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.

²⁹⁷ 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.

²⁹⁸ 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.

²⁹⁹ Upadhyay UD *et al.* (2015) The effect of abortion on having and achieving aspirational one-year plans. *BMC Women's Health* 15:102.

³⁰⁰ Steinberg JR (2020) Decision rightness and relief predominate over the years following an abortion. *Social Science & Medicine* 248:112782.

³⁰¹ Ralph LJ *et al.* (2017) Measuring decisional certainty among women seeking abortion. *Contraception* 95:269–278.

³⁰² Rocca CH *et al.* (2019) *Op. Cit.*

³⁰³ For example, see My Abortion Story by Director of the Turnaway Study, Rana Barar. <https://ww2.kqed.org/perspectives/2016/06/24/my-abortion-story/>

³⁰⁴ Abortion Risks. Turn Away Study. See http://abortionrisks.org/index.php?title=Turn_Away_Study Accessed 12 June 2020.

selectively reported on results, used ‘shockingly simplistic’ outcome measures,³⁰⁵ mixed results from widely differing gestational ages, and failed to provide de-identified data upon request by other researchers,³⁰⁶ 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,^{307,308} 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.³⁰⁹

The Dutch Abortion and Mental Health Study (DAMHS) has yielded several papers denying any adverse mental health effects of abortion.^{310,311} 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%).³¹² 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 coworkers,³¹³ 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 out,³¹⁴ 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 frame.³¹⁵ Phenomenological research suggests that women may cope well initially, but years later reappraise the event negatively.^{316,317} 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.³¹⁸

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

³⁰⁶ Reardon DC (2018a) The Embrace of the Proabortion Turnaway Study: Wishful Thinking? or Willful Deceptions? *Linacre Quarterly* 85(3):204-212.

³⁰⁷ Wallin Lundell I *et al.* (2013) Posttraumatic stress among women after induced abortion: a Swedish multi-centre cohort study. *BMC Womens Health* 13:52.

³⁰⁸ 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.

³⁰⁹ Weisaeth L (1989) Importance of high response rates in traumatic stress research. *Acta Psychiatr Scand Suppl* 355:131-137.

³¹⁰ 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.

³¹¹ 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.

³¹² *Ibid.*

³¹³ 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.

³¹⁴ 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.

³¹⁵ Trybulski J (2005) The long-term phenomena of women's postabortion experiences. *Western J Nursing* 27(5):577-582.

³¹⁶ 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.

³¹⁷ Trybulski J (2006) Women and abortion: the past reaches into the present. *J Advanced Nursing* 54(6):683-690.

³¹⁸ Keys J (2010) Running the gauntlet: women's use of emotion management techniques in the abortion experience. *Symbolic Interact* 33(1):41-70.

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.^{319,320,321,322,323,324} However, some studies also identify positive reactions like relief, happiness and satisfaction.³²⁵ 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.³²⁶ 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.³²⁷ While not a representative sample, a study from Belarus found that 82% of the women had ‘negative psychological sequelae’.³²⁸

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.”³²⁹

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.³³⁰ 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.³³¹ 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.³³²

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.³³³ 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

³¹⁹ Kero A et al. (2001) *Op. Cit.*

³²⁰ Kero A et al. (2004) *Op. Cit.*

³²¹ Fergusson DM et al. (2006) Abortion in young women and subsequent mental health. *J Child Psychology & Psychiatry* 47(1):16-24.

³²² Fergusson DM et al. (2009) *Op. Cit.*

³²³ Hess RF (2004) Dimensions of women’s long-term postabortion experience. *The American Journal of Maternal Child Nursing* 29(3):193-198.

³²⁴ Korenromp MJ et al. (2005) *Op. Cit.*

³²⁵ Fergusson DM et al. (2009) *Op. Cit.*

³²⁶ 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.

³²⁷ 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.

³²⁸ Speckhard A & Mufel N (2003) *Op. Cit.*

³²⁹ Coleman PK et al. (2017) *Op. Cit.*

³³⁰ 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.

³³¹ 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.

³³² Coleman PK et al. (2017) *Op. Cit.*

³³³ 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.

results from “social disapproval, romantic relationship loss, and head versus heart conflict”.³³⁴ 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 study³³⁵ on mental health and abortion confirm other work showing a link between the two.³³⁶ 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.³³⁷ 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.³³⁸ Other researchers have also found a link between abortion and depression^{339,340,341} as well as anxiety,³⁴² although some groups have not been able to confirm this.^{343,344,345,346} 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.^{347,348,349,350} However, methodological problems in one paper in particular³⁵¹ render the results essentially meaningless, a critique referring to its “horrendous methodological contortions”.³⁵² Another more recent study by the same lead researcher similarly concluded that rather than depression

³³⁴ Kimport K (2012) (Mis)Understanding abortion regret. *Symbolic Interaction* 35(2):105-122.

³³⁵ Fergusson DM et al. (2006) *Op. Cit.*

³³⁶ Reardon DC & Cogle JR (2002) Depression and unintended pregnancy in the National Longitudinal Survey of Youth: a cohort study. *Brit Med J* 324:151-2.

³³⁷ Fergusson DM et al. (2008) Abortion and mental health disorders: evidence from a 30-year longitudinal study. *Brit J Psychiatry* 193(6):444-451.

³³⁸ Fergusson DM et al. (2009) *Op. Cit.*

³³⁹ Pedersen W (2008) *Op. Cit.*

³⁴⁰ 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.

³⁴¹ 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.

³⁴² Broen AN et al. (2005) *Op. Cit.*

³⁴³ 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.

³⁴⁴ 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.

³⁴⁵ 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.

³⁴⁶ 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.

³⁴⁷ Steinberg JR & Russo NF (2008) Abortion and anxiety: what's the relationship? *Social Science & Medicine* 67(2):238-52. Epub 2008 May 28.

³⁴⁸ 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.

³⁴⁹ 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.

³⁵⁰ Steinberg JR et al. (2014) Abortion and Mental Health: Findings From the National Comorbidity Survey-Replication. *Obstet Gynecol* 123(201):263-270.

³⁵¹ *Ibid.*

³⁵² 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.

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”.³⁵³ Again, serious flaws in the study design do not allow such a conclusion to be drawn.^{354,355}

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.³⁵⁶

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.³⁵⁷ 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.³⁵⁸ 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.³⁵⁹

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.³⁶⁰ Sullins, like Coleman et al.³⁶¹ 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, 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.³⁶²

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.³⁶³ Moreover, the risk was greater for 3 or more abortions, and did not occur for miscarriages. Similarly,

³⁵³ Steinberg JR et al. (2018) Examining the Association of Antidepressant Prescriptions With First Abortion and First Childbirth. *JAMA Psychiatry* 75(8):828-834.

³⁵⁴ 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.

³⁵⁵ See https://abortionrisks.org/index.php?title=Munk-Olsen_et_al Accessed 20 Apr 2020.

³⁵⁶ 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.

³⁵⁷ 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.

³⁵⁸ Gomez AM (2018) *Op. Cit.*

³⁵⁹ 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.

³⁶⁰ Sullins DP (2016) *Op. Cit.*

³⁶¹ Coleman PK (2011) *Op. Cit.*

³⁶² 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

³⁶³ 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.

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.³⁶⁴ 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 discussed,³⁶⁵ 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.³⁶⁶

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.³⁶⁷

Post-traumatic Stress

A small proportion of women develop post traumatic stress disorder (PTSD) following abortion.^{368,369} This may be related to cultural factors.³⁷⁰ More recent studies have confirmed an elevated risk of PTSD after abortion, which weakened but persisted after controlling for confounders.^{371,372} In one of these studies, abortions later in pregnancy were associated with higher PTSD scores³⁷³ and in a separate study, PTSD symptoms remained elevated after 3 years.³⁷⁴ Incidence of first psychiatric contact for neurotic, stress-related or somatoform disorder was elevated 2-3 months after an abortion.³⁷⁵

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.³⁷⁶ In their review of 48 studies, Daugirdaite et al.³⁷⁷ 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.³⁷⁸ 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.³⁷⁹

³⁶⁴ 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.

³⁶⁵ Biggs MA et al. (2018) Five-Year Suicidal Ideation Trajectories Among Women Receiving or Being Denied an Abortion. *Am J Psychiatry* 175:845-852.

³⁶⁶ 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.

³⁶⁷ Yilmaz N et al. (2010) Medical or surgical abortion and psychiatric outcomes. *J Maternal-Fetal & Neonatal Med* 23(6):541-544.

³⁶⁸ Rue VM et al. (2004) *Op. Cit.*

³⁶⁹ 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.

³⁷⁰ Rue VM et al. (2004) *Op. Cit.*

³⁷¹ Mota NP et al. (2010) *Op. Cit.*

³⁷² Coleman PK et al. (2010) Late-Term Elective Abortion and Susceptibility to Posttraumatic Stress Symptoms. *J Pregnancy* 2010:1-10.

³⁷³ Coleman PK et al. (2010) *Op. Cit.*

³⁷⁴ Curley M & Johnston C (2013) *Op. Cit.*

³⁷⁵ Munk-Olsen T et al. (2011) Induced first-trimester abortion and risk of mental disorder. *New Engl J Med* 364(4):332-9.

³⁷⁶ Rousset C et al. (2011) Posttraumatic stress disorder and psychological distress following medical and surgical abortion. *J Reprod & Infant Psychology* 29(5): 506-517.

³⁷⁷ 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.

³⁷⁸ Speckhard A & Mufel N (2003) *Op. Cit.*

³⁷⁹ *Ibid.*

Substance Abuse and Self-harm

In 1995, a UK study identified an increase in deliberate self-harm after abortion, which includes substance abuse.³⁸⁰ This was corroborated more recently in the study by Sullins³⁸¹ and also by Olsson et al.³⁸² 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.³⁸³ 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.³⁸⁴ Other research has confirmed the relationship between abortion and substance abuse, perhaps as an attempt to cope with emotional loss.^{385,386,387} It may be that of all the mental health problems related to abortion, substance abuse might contribute most to the community mental health burden.^{388,389,390} This was confirmed in 2019 by Sullins who found that apart from suicidal ideation, substance abuse presented the highest post-abortion risk to women.³⁹¹

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.^{392,393,394,395} 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 Study,³⁹⁶ 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.^{397,398}

³⁸⁰ Gilchrist AC et al. (1995) Termination of pregnancy and psychiatric morbidity. *Brit J Psychiatry* 167:243-8.

³⁸¹ Sullins DP (2016) *Op. Cit.*

³⁸² Olsson CA (2014) *Op. Cit.*

³⁸³ 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.

³⁸⁴ 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.

³⁸⁵ Dingle K et al. (2008) Pregnancy loss and psychiatric disorders in young women: an Australian birth cohort study. *Brit J Psychiatry* 193:455-460.

³⁸⁶ Pedersen W (2007) Childbirth, abortion and subsequent substance use in young women: a population-based longitudinal study. *Addiction* 102(12):1971-8.

³⁸⁷ Coleman PK et al. (2009) *Op. Cit.*

³⁸⁸ Fergusson DM et al. (2009) *Op. Cit.*

³⁸⁹ Coleman PK et al. (2009) *Op. Cit.*

³⁹⁰ Mota NP et al. (2010) *Op. Cit.*

³⁹¹ Sullins DP (2019) *Op. Cit.*

³⁹² 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.

³⁹³ 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.

³⁹⁴ 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.

³⁹⁵ 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.

³⁹⁶ 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.

³⁹⁷ Reardon DC et al. (2003) Psychiatric admissions of low-income women following abortion and childbirth. *Canadian Med Assoc J* 168(10):1253-6.

³⁹⁸ Munk-Olsen T et al. (2011) *Op. Cit.*

In a Californian study, women who had an abortion were over-represented in treatment categories that included bipolar disorder, neurotic depression and schizophrenic disorders.³⁹⁹ Nevertheless, a major UK study did not identify any difference in total psychiatric disorders between aborting women and those who carried to term.⁴⁰⁰ With regard to bipolar disorders, some researchers have found an association,⁴⁰¹ while others have not.⁴⁰² Sleep disorders and disturbances are more common in women with a history of abortion.⁴⁰³

Several studies have identified relationship problems between couples where there has been a history of abortion, manifesting as sexual dysfunction.^{404,405,406,407} 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.⁴⁰⁸

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.⁴⁰⁹ However, there are significant weaknesses with the study, and others by the same group, that limit the conclusions that can be drawn.⁴¹⁰

Nevertheless, Nilsen et al have identified a link between prior adolescent substance abuse and likelihood of having an abortion.⁴¹¹ 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.^{412,413,414} Even so, caution needs to be applied, as for one of these studies⁴¹⁵ 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.^{416,417,418,419}

³⁹⁹ 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.

⁴⁰⁰ Gilchrist AC *et al* (1995) *Op. Cit.*

⁴⁰¹ Coleman PK *et al* (2009) *Op. Cit.*

⁴⁰² Mota NP *et al* (2010) *Op. Cit.*

⁴⁰³ 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.

⁴⁰⁴ Coleman PK *et al.* (2009) Induced abortion and intimate relationship quality in the Chicago Health and Social Life Survey, *Public Health* 123:331-338.

⁴⁰⁵ 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.

⁴⁰⁶ Bianchi-Demicheli F *et al.* (2002) Termination of pregnancy and women's sexuality. *Gynecologic & Obstetric Investigation* 53(1):48-53.

⁴⁰⁷ Coleman PK *et al.* (2010) *Op. Cit.*

⁴⁰⁸ Coleman PK *et al.* (2002) *Op. Cit.*

⁴⁰⁹ Munk-Olsen T *et al.* (2011) *Op. Cit.*

⁴¹⁰ Reardon DC (2015) Postpartum mental health study flawed by fetal loss omission. *Scand J Primary Health Care* 33(4):318-319.

⁴¹¹ 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.

⁴¹² van Ditzhuijzen J *et al.* (2013) Psychiatric history of women who have had an abortion. *J Psychiatr Res* 47(11):1737-43

⁴¹³ van Ditzhuijzen J *et al.* (2015) The impact of psychiatric history on women's pre- and postabortion experiences. *Contraception* 92(3):246-53.

⁴¹⁴ 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.

⁴¹⁵ van Ditzhuijzen J *et al.* (2013) *Op. Cit.*

⁴¹⁶ 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.

⁴¹⁷ Trybulski J (2005) *Op. Cit.*

⁴¹⁸ Trybulski J (2006) *Op. Cit.*

⁴¹⁹ Fergusson DM *et al.* (2009) Reactions to abortion and subsequent mental health. *Brit J Psychiatry* 195:420-426.

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.^{420,421,422} 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.^{423,424,425}

Most women undergoing such procedures experience a range of difficult emotions including sadness, meaninglessness, loneliness, tiredness, grief, anger and frustration.⁴²⁶

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.⁴²⁷

In a Scottish study, a majority of men and women experienced negative emotional responses and somatic complaints, including problems in their sexual relationships.⁴²⁸ 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 symptoms remained between 2 and 7 years after the event.⁴²⁹ 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.⁴³⁰ Recent research by the same group⁴³¹ 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.⁴³² 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.⁴³³

⁴²⁰ 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.

⁴²¹ Lafarge C *et al.* (2013) Women's experiences of coping with pregnancy termination for fetal abnormality. *Qualitative Health Res* 23(7):924-936.

⁴²² 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.

⁴²³ Elder SH & Laurence KM (1991) The impact of supportive intervention after second trimester termination of pregnancy for fetal abnormality. *Prenatal Diagnosis* 11:47-54.

⁴²⁴ Zeanah C *et al.* (1993) Do women grieve after terminating pregnancies because of fetal anomalies? A controlled investigation. *Obstet & Gynecol* 82:270-5.

⁴²⁵ 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.

⁴²⁶ Asplin N *et al.* (2014) Pregnancy termination due to fetal anomaly: Women's reactions, satisfaction and experiences of care. *Midwifery* 30:620-627.

⁴²⁷ 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.

⁴²⁸ White-Van Mourik MCA *et al.* (1992) *Op. Cit.*

⁴²⁹ Korenromp MJ *et al.* (2005) *Op. Cit.*

⁴³⁰ 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.

⁴³¹ 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.

⁴³² 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.

⁴³³ 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.

ABORTION STATISTICS FOR ENGLAND AND WALES 2019

There were 207,384 abortions for women resident in England and Wales, the highest number since the Abortion Act was introduced.

The age standardised abortion rate for residents is 18.0 per 1,000 women, the highest rate since the Abortion Act was introduced. The abortion rate for women aged under 18 is the same as in 2018 (8.1 per 1,000), but has increased for women over 35 (from 9.2 to 9.7 per 1,000 between 2018 and 2019).

99% of abortions in England & Wales were funded by the NHS in 2019, with 74% of all abortions taking place in the independent sector. 73% of abortions were medically induced; which increased from 71% in 2018, and increasing by 33 percentage points since 2009.⁴³⁴

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.

⁴³⁴ Abortion Statistics for England and Wales: 2019, *Department of Health and Social Care*, 11 June 2020 <https://www.gov.uk/government/statistics/abortion-statistics-for-england-and-wales-2019>



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