The European Journal of Contraception and Reproductive Health Care, August 2011; 16: 233–240

REVIEW

Misinformation on abortion

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ABSTRACT

Objective To find the latest and most accurate information on aspects of induced abortion.

Methods A literature survey was carried out in which five aspects of abortion were scrutinised: risk to life, risk of breast cancer, risk to mental health, risk to future fertility, and fetal pain.

Findings Abortion is clearly safer than childbirth. There is no evidence of an association between abortion and breast cancer. Women who have abortions are not at increased risk of mental health problems over and above women who deliver an unwanted pregnancy. There is no negative effect of abortion on a woman's subsequent fertility. It is not possible for a fetus to perceive pain before 24 weeks' gestation. Misinformation on abortion is widespread. Literature and websites are cited to demonstrate how data have been manipulated and misquoted or just ignored. Citation of non-peer reviewed articles is also common. Mandates insisting on provision of inaccurate information in some US State laws are presented. Attention is drawn to how women can be misled by Crisis Pregnancy Centres.

Conclusion There is extensive promulgation of misinformation on abortion by those who oppose abortion. Much of this misinformation is based on distorted interpretation of the scientific literature.

KEYWORDS Misinformation; Myths; Abortion; Mortality; Breast cancer; Mental health; Fertility; Fetal pain; Abortion review

INTRODUCTION

Induced abortion is an emotive subject. There are many views taken on it, to which people are entitled. In most countries it is regarded as a criminal act, *unless* certain circumstances exist. In an increasing number of countries (56 out of 196 at present[1]), it now suffices that the woman requests that an abortion be carried out, provided it is a first trimester pregnancy. When both legal and clandestine abortions are included, it is estimated that 42 million induced abortions are carried out worldwide each year[2]. It is now regarded as a human right to[3]:

- receive and impart information,
- have access to the benefits of scientific progress,
- receive the highest attainable standard of health,
- decide the number and spacing of one's children.

International law now also enshrines the right to reproductive health[4,5].

Abortion has become politicised, with the church, other religious bodies and political parties campaigning to restrict women's access to abortion. One of the ways that those who are against it try to restrict

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DOI: 10.3109/13625187.2011.570883

abortion is by producing misinformation. This can be by spreading false or inaccurate information in the form of leaflets or through websites, by speaking in public, by working through the media and by trying to intercept women who are seeking an abortion and providing them with biased counselling. In the USA especially, anti-abortion campaigners go further, taking cases to court and getting laws changed.

This article shows how data can be distorted and corrupted leading to members of the public being misled. It also looks at counselling services that use this kind of information. The article will analyse five aspects of abortion in turn: risk to life, risk of breast cancer, risk to mental health, risk to future fertility, and fetal pain.

METHODS

A literature review was carried out by electronic searching of two databases. For risk to mental health, PsycINFO was used. For the other four topics, Medline was used. Searches were made for the key words *maternal mortality, breast cancer, infertility, fetal pain and mental health with therapeutic abortion/induced abortion/termination of pregnancy*. The searches were on published primary research and review articles from 1990 onwards, and were limited to humans and English language publications. The reference lists of key articles were scrutinised; some more papers were identified by this means. The websites of relevant national and international professional organisations were also searched for evidence-based guidance using the above terms. Systematic reviews were preferred to individual studies, when found. Among individual studies, record-linkage design was preferred. Cohort studies were preferred to case-control studies. Studies with the information on abortion obtained from medical records were preferred to self-report. Secondary analysis of already collected data was only accepted if there were no other data available. Descriptive studies with no comparator group were disregarded.

RISK TO LIFE

Considering that the right to life and survival is enshrined in the International Covenant on Civil and Political Rights[3], it is imperative that information relating to this should be freely available and accurate. One of the headlines one finds being put out on websites (for example http://afterabortion.org and www.unitedforlife.com) as a fact about abortion is "Death rate of abortion three times higher than childbirth". This misinformation has crept into the medico-legal literature too[6]. Studies from Finland are cited[7].

In order to fully explain why this is a false statement, it is necessary to go over some maternal mortality definitions. A 'maternal death' is the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and the site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes[8]. A more recently conceived terminology is 'pregnancy-associated death'; this is the death of a woman while pregnant or within one year of termination of pregnancy, irrespective of the cause of death or the site of pregnancy[9]. When data for the latter term are scrutinised it appears that most pregnancy-associated deaths are not related to complications of the pregnant state, labour or puerperium[7]. Another phenomenon that needs to be taken into account is the 'healthy pregnant woman' effect, which has been demonstrated in several studies[7,10,11]. The risk of a medical-condition-related death within one year of childbirth is lower than the risk among non-pregnant women in the same age group[10,11]. Women with serious medical conditions may be more likely to have a spontaneous or induced abortion and are also at greater risk of dying. Therefore, all mortality due to a natural cause among women having an abortion may be greater than that of non-pregnant women belonging to the same age group. Whether it be after childbirth or after abortion, accidental death is not a result of the pregnancy. It is likely that accidental deaths following abortion share common risk factors with the abortion[12]. These risk factors probably include mental health problems, poverty, sexual or physical abuse, substance misuse and intimate partner violence.

The rate of direct deaths (deaths due to obstetric complications of pregnancy) within 42 days after childbirth in the UK is 6 per 100,000 (132 deaths in 2,113,831 maternities)[13]. The equivalent figure for abortion is 0.2 per 100,000 (one death in 553,711 abortions). Abortion of all gestations performed by all methods was thus 30 times less likely to cause death than childbirth during the years 2003–2005.

Table 1 Comparative mortality rates for different pregnancy outcomes (USA)

Pregnancy outcome	*Rate per 100,000 outcomes*
Surgical abortion to 9 weeks[43]	0.1
Medical abortion to 9 weeks[44]	1
Miscarriage[45]	1
Live birth[46]	7
Ectopic[46]	32

Data from the USA are similar. Table 1 shows the death rates from abortion compared to those associated with miscarriage, childbirth, and ectopic pregnancy. It must be acknowledged that these are rough comparisons as they are taken from different studies which may not be exactly comparable. These data show surgical abortion to be 70 times less likely to cause death than childbirth. Medical abortion carries the same order of risk to life as miscarriage, which is what one would expect.

Returning to the Finnish study[7], the key data are summarised in Table 2. Misleading information presents data for all causes, without the background explanation about the healthy pregnant woman effect. The Table shows how pregnant women having an abortion are less likely to die than non-pregnant controls. Abortion was three times less likely to be associated with direct deaths than childbirth in Finland during the years 1987 to 2000.

Table 2 Finnish record-linkage study: Mortality per 100,000 pregnancies*/person years 1987–2000[7]

Cause of death	*Childbirth*	*Induced abortion*	*Non-pregnant*
Direct pregnancy-related (thrombosis, eclampsia, haemorrhage, anaesthetic, etc.)	3.9	1.3	N/A
Violent causes (injuries, homicide, suicide)	10	60	24
All causes	26	82	94

*During pregnancy or within one year. N/A: not applicable.

RISK OF BREAST CANCER

There is widespread dissemination of a purported link between abortion and breast cancer, the so-called 'ABC link'. Put this term into a search engine and see how many hits you get. A leaflet produced by the Coalition on Abortion/Breast cancer is entitled 'Abortion raises Breast Cancer risk (ABC)'. This can be seen at www.abortionbreastcancer.com. Claims are made on websites, for example www.lifeissues.org, that abortion causes an additional 28,000 new cases of breast cancer each year in the USA. As with risk to life, this misinformation has crept into the medico-legal literature[14]. There is extensive citation of non-peer reviewed literature.

Systematic reviews of observational studies are a higher level of evidence than individual studies[15]. Such a review was published in 1997[16]. This review of 28 observational studies concluded that a definitive conclusion about a possible association between abortion and breast cancer could not be reached because of inconsistent findings across studies. Another review was more definite; the overall increased risk when 21 studies were combined was 1.3 (95% confidence interval [CI] 1.2–1.4)[17]. However, this review failed to include 19 eligible studies, which were subsequently taken into account in a 2004 analysis. The 2004 systematic review is a pooled analysis of 53 studies from around the world[18]. This review showed no association between abortion and breast cancer. In particular, for the 13 studies with information on abortion recorded before the diagnosis of breast cancer, the relative risk of breast cancer comparing women who had had one or more pregnancies that ended in induced abortion to women with no such record was 0.93 (95% CI 0.89–0.96).

There are more than 20 case-control studies on abortion and breast cancer in the literature. Some of these show a positive association between abortion and breast cancer. However, this study design is prone to recall bias[19]; there is more under-reporting of the potentially sensitive information about previous induced abortions in the healthy controls than in the breast cancer cases[20,21]. This bias produces a spurious raised risk of breast cancer after abortion in studies of this type.

Cohort studies are not subject to this bias and come higher in the hierarchy of evidence than case-control studies[15]. There are at least ten prospective cohort studies in the literature; these show no association or a negative association. There are now seven record-linkage studies on this topic, all of which show no association[22]; subject data are present in databases and recall is not needed. Three recent cohort studies of high quality also show no association (Table 3).

The US National Institute of Cancer[23] and the UK Royal College of Obstetricians and Gynaecologists[24] concluded that induced abortion is *not* associated with an increase in breast cancer risk. The Science and Technology Committee of the British Parliament found *no* evidence that contradicts this statement[25].

RISK TO MENTAL HEALTH

There are whole websites dedicated to the so-called 'Post-abortion syndrome' (PAS), for example www.postabortionsyndrome.org. This purported syndrome, which was proposed in 1992[26] was conceptualised as a form of post-traumatic stress disorder and was based on a small number of extreme reactions. The term is not recognised as a diagnosis in the Diagnostic and Statistical Manual of Mental Disorders[27], nor by any professional group of psychiatrists or psychologists. A booklet has been produced that depicts the PAS as a common and serious disease. There are statements that male partners and fetal grandparents are also at high risk of developing this disease[28]!

Study of this subject is fraught with difficulty. The ideal study design would consist of assigning women with unwanted pregnancies either to receive an abortion or to have their request denied without the possibility of having the procedure elsewhere[25]. Its unethical character obviously precludes such a study from ever being performed. Second best to the ideal study design would be women with unwanted pregnancies who have abortions compared with women who have unwanted pregnancies but whose request for an abortion is denied. Very few such studies have ever been published[29–31]. Other comparator groups that have been used, in decreasing order of appropriateness, are:

- all women giving birth, some of whose births would be unwanted,
- nulligravidae, and
- women who conceived because they wanted to become mothers and went on to have a child.

Secondary analysis of survey data lacks vital information such as prior mental health, life circumstances, and prior exposure to violence; such studies are particularly suspect when others fail to replicate the results using the same data[32]. Another type of study involves following a cohort of women before and after an abortion. Such a record-linkage study of women with no prior history of mental illness showed no increase in contact with psychiatric services when a 9-month period before the abortion was compared with a 12-month period after the abortion[33].

There have been recent major reviews of this topic[34,35]. The most extensive review was published in 2009; it is based on 58 papers published between January 1989 and May 2008[36]. The authors concluded that the relative risk of mental health problems among adult women who have a single, legal, first-trimester abortion of an unwanted pregnancy is no greater than

Table 3 Recent cohort studies exploring the possible association between abortion and breast cancer

Publication	*Cohort*	*Relative risk (95% CI) for one previous abortion*	*RR for two or more previous abortions*
Reeves *et al.*[47]	EPIC study	0.93 (0.85 – 1.02)	0.99 (0.86 – 1.14)
Michels *et al.*[48]	Nurses' Health Study II	1.02 (0.88 – 1.19)	0.95 (0.68 – 1.31)
Henderson *et al.*[49]	California Teachers Study	0.98 (0.77 – 1.25) for nulliparous women 1.08 (0.93 – 1.24) for parous women	0.86 (0.57 – 1.30) for nulliparous women 0.97 (0.76 – 1.24) for parous women

CI: confidence interval; RR: relative risk.

Table 4 Prospective studies of fertility after induced abortion

Study	*Setting*	*Controls*	*Follow-up (months)*	*% conceived*
WHO[50]	Obstetrics/Gynaecology Hungary & South Korea	Postpartum family planning	30	>90% in both groups
MacKenzie and Fry[51]	Obstetrics/Gynaecology UK	Self	24	97%
Frank *et al.*[52]	General practice UK	Deliveries of unplanned pregnancies	24	97% in both groups

the risk among women who deliver an unwanted pregnancy.

RISK TO FUTURE FERTILITY

There are numerous references on the internet (for example www.pregnantpause.org and www.abortion-facts.com) to a quote attributed to Dr Bohumil Stipal, Deputy Minister of Health of the former Czechoslovakia, who allegedly stated that 'roughly 25% of the women who interrupt their first pregnancy have remained permanently childless'. Other figures rehearsed are an added 2–5% incidence of sterility after abortion.

Early reports in the literature raised the possibility that abortion could adversely affect subsequent fertility. These reports from Eastern Europe and Japan were either unsupported by data or were lacking a control group for comparison. Some subsequent studies included women who had had illegal abortions, which negates their findings.

There are three prospective studies in the literature examining fertility after induced abortion that demonstrate no negative effect of abortion on subsequent fertility (Table 4). There are also some case-control studies on this topic (Table 5). Case-control studies should be interpreted cautiously as they are subject to bias and come lower in the hierarchy of evidence than cohort studies[15]. Three of the four studies in Table 5 show no effect of abortion on subsequent fertility. One study in Table 5 shows a relative risk greater than 1, but the confidence intervals include 1 or are very close to 1[54]. These studies are therefore of no or borderline significance.

Table 5 Case-control studies of secondary infertility following abortion

Study	*Setting*	*Controls*	*Relative risk (95% CI) for one abortion*	*RR for two or more abortions*
Daling *et al.*[53]	Obstetrics/Gynaecology USA	Deliveries identified by birth records	1.15 (0.7 – 1.89)	1.29 (0.39 – 4.2)
Tzonou *et al.*[54]	Obstetrics/Gynaecology Greece	Hospital antenatal	2.1 (1.1 – 4.0)	2.3 (1.0 – 5.3)
Minh *et al.*[55]	Obstetrics/Gynaecology Vietnam	Hospital caesarean section cases	1.27 (0.64 – 2.49)	–
Torres-Sánchez *et al.*[56]	Obstetrics/Gynaecology Mexico	Hospital cases other than infertility; near neighbours	1.57 (0.29 – 8.65) with hospital controls; 0.82 (0.07 – 8.99) with neighbourhood controls	–

CI: confidence interval; RR: relative risk.

FETAL PAIN

This is a highly emotive aspect of abortion. Much of the literature cites Professor Anand's group[37]. There needs to be an awareness of the dangers of extrapolation of evidence from neonates that are in a different environment, breathing oxygen. When the neurobiology of fetal development is scrutinised, it is clear that connections between fetal thalamus and cortex are not established until 24 weeks' gestation[38]. This means that perception of nociceptive stimuli is not possible until after 24 weeks. Also, the fetus is not conscious before birth; the fetus is sedated by the physical environment of the uterus[38]. Therefore it is unlikely that the fetus can experience pain before birth, even when the synaptic connections are in place. It is clear that anaesthetic techniques currently used during fetal surgery are not directly applicable to abortion procedures[39].

LEGAL MANDATES FOR INFORMATION PROVISION

Some countries have explicit legal provisions for the content of information to be supplied to women seeking abortion. A prime example is the USA. Such an imposition interferes with the consultation between the health care professional and the woman, and jeopardises clinical judgement.

Twenty two of the 50 US States have abortion-specific informed consent requirements[40].

Five of the seven States that include information on breast cancer inaccurately assert a link between abortion and future risk of breast cancer. Seven of the 20 States that include information on possible psychological responses to abortion describe only negative emotional responses. Two out of the 17 States that include information on future fertility after abortion inaccurately portray this risk. Ten States include information on the ability of a fetus to feel pain. It has been powerfully argued that US fetal pain legislation is unconstitutional as it imposes an undue burden on a woman's right to choose[41].

CRISIS PREGNANCY CENTRES

These are widespread in many countries. Deceptive advertising via websites or 'Yellow Pages' telephone directories attracts women into attending for counselling[42]. In North America they locate themselves near to abortion clinics. The consultations are biased and seek to induce guilt and to pressurise the woman with an unintended pregnancy into continuing with the pregnancy. A common ploy is to do a pregnancy test and delay giving the result, meanwhile exposing the woman to propaganda. Sometimes there are financial inducements in the form of baby clothing and suchlike. Misinformation as described above is extensively used. Women are told that abortions are painful, life-threatening procedures that will leave them with long-term emotional, physical and psychological damage.

In the UK, such Centres are not subject to the Department of Health's Register of Pregnancy Advisory Bureaux. There have been calls for registration of these establishments and for regulation of advertising, but the Committee of Advertising Practice has not seen fit to impose any restrictions.

CONCLUSIONS

There is extensive promulgation of misinformation on abortion by those who oppose abortion. Much of this misinformation is based on distorted interpretation of the scientific literature, citation of non-peer reviewed literature and manipulation of statistics. This pseudo-science is difficult for the public to see through. Providers need to be aware of the way so-called 'Crisis Pregnancy Centres' work, and the content of the information they use. Access to abortion services needs to be clearly signposted and advertised so that women are less likely to be exposed to biased counselling from such centres.

ACKNOWLEDGEMENT

This article is based on a presentation entitled 'Myths' made at the FIAPAC session of the European Society of Contraception and Reproductive Health Congress in The Hague on 20 May 2010.

Declaration of interest: The author reports no conflicts of interest. The author alone is responsible for the content and writing of this paper.

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