A feminist perspective

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The debate in Australia about human embryo experimentation has largely focused on the moral status of the embryo. This focus on the disposition of embryos is encapsulated in the Victorian Infertility (Medical Procedures) Act 1984. The Act provides for ‘approved’ experiments on embryos designated as spare or excess, i.e. not created specifically for the purposes of experimentation. In 1987, amendments were made to the Act to include provisions for experimentation on pre-syngamous embryos, created specifically for the purposes of destructive embryo experimentation. (Syngamy is defined in the Victorian Infertility (Medical Procedures) Act as the point when the pronuclei of the egg and sperm fuse. This occurs at about 22 hours after the sperm enters the egg.)

Discussion which centres on the embryo itself as a separate entity has masked two central aspects. First, embryo experimentation is only possible because eggs are taken from women’s bodies during an experimental and rarely successful procedure called in vitro fertilisation (IVF), or from women undergoing sterilisations (so-called ‘donor women’). Second, the genetic screening, selection and reimplantation of embryos based on their genetic quality is inherently eugenic.

In the past 15 years, massive scientific developments have taken place in the fields of recombinant DNA technology and genetic engineering. The year 1978 saw the birth of the world’s first ‘test tube’ baby, and the technique of in vitro fertilisation is now being applied to the ‘curing’

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of infertility in Europe, America, Australia, Asia and countries of the Third World. These two areas of science may have seemed unrelated but in fact have been developing simultaneously. The two have now clearly converged. In vitro fertilisation, the fertilisation of eggs with sperm in an external environment, provides embryos which may be re-implanted into a woman. These embryos are also accessible for screening and manipulation. Genetic screening of human embryos and possibly in future, genetic manipulation of embryos, are technologies which seek to eradicate so-called ‘defective’ genes from future human populations.

With the combination of IVF and selection of embryos for implantation, we are witnessing the theory and practice of eugenics resurrected. The increased emphasis in scientific research on labelling the causes of diseases as genetic ones (including conditions such as manic depression, schizophrenia, heart disease and asthma) and neglecting environmental factors, can be likened to the theories of sociobiology and biological determinism. Historically, both eugenics and sociobiology have been used in sexist, racist and ablest fashions, to reinforce prejudices, and to oppress certain social, religious and ethnic groups.

### Historical background

Eugenics is a term first made popular by Francis Gallon (the cousin of Charles Darwin) in 1883 in England, with the publication of *Inquiries into Human Faculty and its Development*. He took it from the Greek ‘eugenes’, which means ‘of good birth’. Eugenics claims to apply genetic principles to the improvement of ‘mankind’, and there are two general subdivisions, ‘positive’ eugenics, the increasing of the reproduction of fit individuals, and ‘negative’ eugenics, reducing the breeding of unfit individuals (e.g. ‘social degenerates’). Galton thought that an individual’s abilities and behavioural traits were genetically determined and he was looking for the source of his own family’s genius.

Early this century, the eugenics movement gathered momentum in the United States, in both academic and popular circles, and it was associated with a sense of white Anglo-Saxon superiority. Eugenic writings of the time argued that intelligence had a biological and genetic basis. Characteristics such as ‘feeblemindedness’ and ‘degeneracy’ were said to be inherited through single genes (Mendelian genetics). The movement influenced the passing of sterilisation laws in 24 States for various ‘social misfits’, for example, criminals, the mentally ill, sexual ‘perverts’, alcoholics, and others. The *Johnson Act* 1924 almost totally restricted immigration from Eastern European and Mediterranean countries into the United States. Although many biologists later withdrew their support for such arguments because of the scientific flaws and bias, the immigration restrictions were not repealed until 1965.

At a similar time in Germany, eugenic ideas were popularised under the term ‘racial hygiene’. The idea of racial hygiene had become popular amongst the German medical profession, and the rise of Nazism saw the further embracing of purely biological values. These values were institutionalised with the passing of various laws:

- In 1933, the Law for the Prevention of Genetically Diseased Offspring was passed, and it meant that individuals with schizophrenia, feeblemindedness, manic depressive insanity, genetic epilepsy, Huntington's chorea, blindness, deafness, physical deformity or alcoholism would be sterilized against their will.
- In 1935, the Law for the Genetic Protection of the German People disallowed marriage between individuals if one partner was genetically defective, Jewish, or from any race deemed inferior. Doctors were also empowered to carry out involuntary euthanasia of people with ‘incurable illnesses’.

It is important to note that doctors and medical scientists were the 1300 members of the society for Racial Hygiene up to the year 1930, most were physicians. The National Socialist Doctors Association, which represented the main medical wing of the Nazi Party, had more than 30 000 members in 1938, representing 60% of all physicians practicing in Germany at that time.

In Australia, there were proponents of eugenics, and eugenic societies existed early this century. Eugenists in Australia
considered environment to play a stronger role in the development of human characteristics than purely hereditary factors. Physicians and politicians who supported eugenic ideas, however, campaigned for eugenic marriage laws, and in 1912, the editor of the Australian Medical Gazette commented favourably on the need to segregate mental defectives and welcomed the formation of eugenic societies, which flourished in the 1930s.9

The screening and manipulation of human embryos for improved genetic also has a eugenic rationale. The term ‘genetically defective’ implies that there are those of us who are genetically inferior, and by inference, that there is a genetically superior condition. It is often argued that such technology is value free or neutral, and that it can then be used or abused. But techniques of embryo screening and selection are developed with a eugenic intention — they are designed for eugenic outcomes, i.e. only ‘genetically perfect’ embryos will be selected in the embryo transfer stage of IVF. The intention is to get rid of ‘bad genes’ from the human population. In the language of eugenics, it is to increase the reproduction of ‘fit’ individuals. Indeed, leading French IVF expert, Jacques Testart, when referring to the screening of IVF embryos for genetic diseases or for sex, said; ‘If we have such techniques we can use them for many things. Eugenics is not far away. I think it is better to abandon the technique than to take the risk’ 10

Contemporary interests

Melbourne IVF scientists have said it they are not interested in genetic manipulation of embryos for correction of ‘defective’ genes (germ line gene therapy). However, there is no qualitative distinction between genetic screening and genetic manipulation. Through genetic screening, embryos which are considered abnormal will be thrown away. The rationale and its ends are the same for both screening and gene therapy — to eliminate undesirable genes from the human population.

Ultimately it is likely that when scientists consider gene manipulation techniques are sufficiently developed to ‘correct’ embryos with ‘problem’ genes, they may argue for its use ostensibly to appease community concerns about the discarding of embryos.

Indeed, genetic manipulation and screening of embryos or gametes has been on the agenda ever since IVF began. Dr Alan Trounson. Australian IVF scientist, has previously stated that the screening or manipulation of IVF embryos to overcome genetic diseases is still on the agenda:

There are many more complex situations that require the development of sophisticated methods such as DNA insertion by techniques of genetic engineering to overcome generic diseases, and the sexing of human embryos for cases of sex-linked genetic disease.11

Dr Anand Kumar of the Institute for Research and Reproduction in India sees that IVF technology will have beneficial effects medicine as a whole, especially in the treatment of inherited diseases by gene manipulation of embryos.12

Superovulation and embryo research

Embryo experimentation is only possible through the process of IVF, which brings human gametes into the laboratory environment for the creation of embryos. Particularly, it relies on a continuing supply of oocytes from women, obtained by the administering of superovulatory drugs, and invasive surgery for egg collection. Superovulatory drug and hormone regimens may pose serious health risks for women undergoing IVF. The adverse effects of clomiphene citrate, routinely used as part of superovulation have been extensively documented.13

Adverse effects of superovulation some women are hyperstimulation of the ovaries, ovarian cysts, and cancers. A new drug on trial in Australian IVF programs called Buserelin, has been promised to yield much higher pregnancy rates.14 Buserelin is an agonist of LH-RH (luteinising hormone-releasing hormone). It works by desensitising the pituitary gland and induces an artificial but reversible menopause, i.e. Buserelin blocks the natural production of hormones by the woman that are necessary to induce ovulation. It can induce hot flushes and other menopausal symptoms in women. Following the administration of Buserelin, other exogenous gonadotrophins are given to induce ovulation.

Prior to the blocking of hormone production, Buserelin
can actually stimulate the production of LH-RH hormones. This is a very dangerous effect called flare-up and may lead to hypersumulation and cysts on the ovaries. A second hypersumulation may occur after the administration of the egg releasing hormones in the same cycle.15

The use of Buserelin as an agent in superovulation means that egg collection can be programmed for convenience of medical staff. It also reportedly yields a greater number of eggs per cycle than previous drug regimens. British IVF teams have been using Buserelin in IVF programs and see the greater egg ‘harvest’ as facilitating the use of preimplantation diagnosis:

An important advantage of treatment with Buserelin is that large numbers of fertilisable eggs are produced during one cycle of treatment. This will allow the simultaneous screening of many zygotes for single gene defects for preimplantation diagnosis.16

**Embryo experimentation in victoria**

Victoria was the first locality in the world to enact legislation pertaining to experimentation on human embryos. A distinction was made in the Infertility (Medical Procedures) Act 1984 between destructive and non-destructive experiments, and between spare embryos and those created specifically for the purposes of experimentation. Since 1986, IVF scientists at Monash Medical Centre have sought permission to perform destructive experiments on embryos created by a procedure called microinjection. A sperm is injected directly into an egg in the laboratory, because the sperm is weak or defective and unable to fertilise the egg. In clinical practice, microinjection is supposed to alleviate male infertility. Before attempting the clinical use of microinjection on couples on IVF programs, the scientists wanted to examine the embryos to see if their chromosomal status was normal. Following this request, the Victorian Standing Review and Advisory Committee on Infertility deliberated at length and in 1987, amendments were made to the Act which allowed “approved” experiments on embryos (deliberately created for experimentation) up to the point of syngamy.

In April 1988, prior to the full proclamation of these amendments, it was discovered that the IVF team had already begun to proceed with the microinjection technique with couples on the IVF program.17 The IVF team was ordered to stop using the procedure by the Health Minister, David White, as it contravened the spirit of the Victorian law, i.e. the Standing Review Committee should have approved the use of a new procedure relating to the alleviation of infertility. Undoubtedly frustrated at not yet being allowed to perform experiment on embryos created by microinjection, the IVF team bypassed the restriction by attempting to implant the embryos into women to see if the foetuses developed normally.

Once the embryos were created and implanted, the developing foetus could be monitored by ultrasound throughout the pregnancy, and Professor Wood advocated therapeutic abortion if a defective foetus was discovered.18 This outrageous proposal showed very little concern for the women involved. It also clearly reflected their view that women can freely be used as vessels to test the success of their experiment of creating embryos by microinjection. It may also be argued that the use of microinjection in a clinical setting appeared to bring pressure to bear on the Minister to proclaim the Act fully, with respect to the provisions for destructive pre-syngamous embryo experimentation.

The IVF scientists had their way, because the Standing Committee approved the microinjection embryo experiments, using 80 human embryos. Before approval, Br Trounson collaborated in setting up the microinjection experiments at a private IVF clinic in Sydney. In New South Wales, there are no laws to prevent or regulate human embryo experimentation.19 This set a questionable precedent, because of the likelihood that other types of embryo experiments would be approved in the future.

**Embryo biopsy**

A technique developed at Monash Medical Centre, at present using mouse embryos, is embryo biopsy. It involves removing one cell from an early embryo and analysing the genetic material from that cell to determine whether the embryo is carrying genetic or chromosomal aberrations. The remainder of the embryo is presumably able to develop normally. As predicted,
the Standing Review and Advisory Committee approved experiments to use embryo biopsy to test for genetic defects in human embryos, Therefore transferring them to ‘patients’ (a euphemism for women) on IVF programs. The tests are to be carried out on a batch of two-day old (four-celled) embryos formed from eggs that have taken longer than normal to fertilise.

The controversy which followed this decision was concerned with the fact that the embryos were two days old, and therefore outside the time limit (22 hours) for experimentation set down in the amendments to the Victorian Act. If the embryos are called ‘spare’, i.e. not specifically created for purposes of experimentation, then there is no consistency with the legislation. (It is still unclear whether the experiments will go ahead based on how the legislation stands at present.) The distinction between spare embryos and those created specifically for experimentation is one made for expediency. The creation of embryos, spare or otherwise relies on the fact that women are superovulated to produce many eggs and therefore many embryos. Debates and concerns focused on the moral status of the embryo perpetually keep women invisible in the issue — they are merely the source of genetic material of one cell taken from the early embryo. Professor Carl Wood said that about 3% of IVF embryos had delayed fertilisation, and at present these embryos are not transferred to patients because of a risk that such embryos carry genetic abnormalities. If embryo biopsy could identify which embryos were ‘healthy’, Wood said, then they could be saved and used by patients instead of being wrongly discarded. The apparent motive is to save this small number of embryos. It is short-sighted to believe embryo biopsy and genetic analysis in future will not be used to select out and discard embryos which carry specific genetic diseases such as Huntington’s disease, muscular dystrophy, cystic fibrosis, etc. Genetic probes for such diseases have already been developed and are used in association with amniocentesis and chorion villus biopsy. For some diseases, however, the probes are based on segments of DNA than are located close to, and may be inherited along with, the so-called ‘disease gene’. The error margin in diagnosis using marker gene probes is considerable.

At present, the proposals for embryo biopsy experiments by the Centre for Early Human Development at Monash Medical Centre are confined to embryos created from eggs that have taken longer than normal to fertilise. Dr Robert Winston from the Hammersmith Hospital IVF clinic in London is reportedly already offering ‘services’ to detect certain hereditary disease genes in IVF embryos, for couples who have a risk of passing on genetic diseases to their offspring. The Hammersmith group has also been able to determine the sex of three-day-old preimplantation IVF embryos by amplification! of Y-chromosome segments in the genetic material of one cell taken from the early embryo. The first sex determination test for early human embryos, developed in Edinburgh, used a Y-chromosome probe and also involved the destruction of the embryo. The new test developed at the Hammersmith Hospital does not require the use of a genetic probe and leaves the use of the embryo intact.

**Femaleness as a genetic defect**

Sex determination of foetuses by amniocentesis or of embryos using the biopsy technique is an issue of great concern. While scientists have maintained that the sexing of embryos applies to cases of sex-linked genetic disease, clearly it offers the opportunity for selection of embryos solely on the basis of sex. Dr John West, from the Edinburgh team which developed the first test for sex determination of human embryos said that it would not be ethical to use the test for sex determination, but he admits, ‘we couldn’t prevent the technique from being used in that way’.

We already know that in some countries, female foetuses are aborted in their thousands. Following the introduction of amniocentesis into India in 1975, it rapidly became a commercially available test used almost exclusively for sex determination, followed by selective abortion of female foetuses. It is estimated that 78 000 female foetuses were aborted in India between 1978 and 1983 (Foram Against Sex Determination and Sex Pre-Selection, Bombay, India). This practice, combined with the long legacy of female infanticide, has led to an alarming decrease in the ratio of females to males in India.
There are many male preferring societies, including Western societies, and female feticide is practised in Western countries, too, albeit disguised. A newspaper report last year revealed that in Sydney, fetuses of a sex unwanted by the parents were being aborted following chorion villus biopsy tests.  

Similarly, in Britain there have also been reports of selective termination of foetuses following amniocentesis based on learning their sex.  

Conclusion

The rapid technical developments in genetic and reproductive technology research may well provide the justification for genetic screening (and possibly genetic manipulation) of human embryos to eradicate genetic disorders. Moreover, the techniques contain and reflect the values of our society that does not seek to deal with the issue of disability, but rather eliminate it. The nature of this research is eugenic, since the aim is to apply genetic screens to select which embryos are implanted and therefore which babies are born. As the number of genetic probes for diseases rapidly expands, the window of normality will become narrower. This amounts to a new kind of eugenics.

The notion of perfect babies has a negative impact on disabled people in general, and a preferable sex of baby can only serve to intensify attitudes and practices which are integral to the discrimination against and oppression of women. Sex of the embryo may in future, in our society, be included in the quality control. Medical technologists taking part in this research may argue that prenatal and preimplantation screening tests are developed because society demands them. But initially, it is the scientists and practitioners who decide which techniques and genetic probes to develop. The demand for such tests can be created thereafter.

Multinational companies involved in genetic engineering technology are spending millions of dollars in developing gene probes to diagnose diseases. The creation of a market for these probes is essential to justify the expenditure. More and more probes for so-called defective genes will become part of this enterprise.

Dr Anne McLaren, British embryologist (also a member of the Voluntary Licensing Authority which regulates research on human pre-embryos in Britain) has already suggested that any couples who fear passing on defective genes to their offspring should either use IVF with preimplantation diagnosis, or have the embryo flushed from the women’s uterus and screened. More and more women will be pressured to use these dubious technologies. And finally of course, it will be women who test the product – only when women have carried their children to term will science know if its manipulation and intervention have succeeded. What will the cost be? Will science foot the bill if it has failed?

References

1. The Commonwealth Report on Funding to IVF (Department of Community Services and Health) 1988, estimates a success rate of live births per treatment cycle as 8.8%. The rate for ‘unproblematic’ births was put at 4.8%.
5. ibid.
6. ibid.
8. ibid.

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to remedy the problems that arise. This is evidenced by the level of confusion that surrounds the issues involved in the selection for treatment or non-treatment of severely compromised and/or handicapped neonates.

If selection for non-treatment is occurring, conditions must be established which permit an open debate of the issues involved. The law cannot possibly make certain that which, because of its very nature, will be dictated by the individual circumstances. It can, however, attempt to provide some form of legal matrix within which basic codes of care may be formulated.

References

4. Yu, op. cit, at 98.
9. Yu, op. cit, at 98. A research program conducted over eight years at the QVMC in Melbourne examined the long-term survival and disability rate amongst 206 infants in the 500-900 g birthweight category. The results were: 108 (52%) survivors; 22 (20%) survivors with impairment - including cerebral palsy, blindness, sensorineural deafness and developmental delay; with a further 13 (12%) survivors with major disabilities.
10. Criminal Code 1899 (Qld) s.292; Criminal Code 1913 (WA) s.262; Criminal Code (Tas.) s.153(4); Crimes Act 1900 (NSW)s.20; Crimes Act and Ordinance 1900 (ACT) s.20.
12. Weir, R.F., ‘Selective Nontreatment - One Year Later Reflections and a Response’, (1985) 20 Soc. Sci. Med. 11,1109-1117. Weir argues that if some infants are permitted to die then it is morally defensible to so permit according to medically defined categories. Weir goes on to suggest that, within those categories, infants destined for non-treatment may be identified through the use of ordinary/extraordinary treatment requirement. He prefers to replace these labels with the terms ‘obligatory’ and ‘optional’; that is, there are infants that neonatologists are obliged to treat as opposed to those where the initiation of treatment would be optional.
17. Australian College of Paediatrics, op. cit, at 219.

Patient’s social circumstances

Yet another role the community member plays is to ask questions about the patient’s social circumstances. It must be remembered that appearing to be mentally ill is only one of the criteria for involuntary commitment. Just as important to the decision-making process is whether the patient can receive treatment in a less restrictive environment (s.8(l)(e)).

Unfortunately, the inability of quite a number of patients who come before fee Board to receive treatment in a less reactive environments directly related to their own disadvantaged social circumstances. There may be no supportive family or Mends able or prepared to provide accommodation, care and/or supervision or the patient might have limited economic resources. The lack of availability of a range of ‘community’ resources such as community health nurses to supervise the taking of medication or appropriate accommodation is also of major importance. Questions about the availability of community resources are often raised by the community member. Should friends or relatives be asked to attend the hearing? Would a social worker’s report be useful in helping the Board come to its decision? An examination of evidence relating to s.8(l)(e) highlights a fundamental issue the Board has had to address. Should a person be kept in a mental institution as an involuntary patient because they have nowhere else to go and no-one else to care for them?
Conclusion

One of the most positive factors associated with the formation of the Mental Health Review Board is that a wider range of people are becoming aware of the very real disadvantages faced by mentally ill people because of a lack of community resources. In addition, of course, a broader range of disciplines now bears upon the quite crucial decisions which are made about patients’ lives.

References