
UNIT 13 GENDER AND GENETIC DEBATE

Structure

- 13.0 Introduction
- 13.1 Learning Outcomes
- 13.2 Sex and Gender Classification
 - 13.2.1 Nature vs. Nurture Debate
 - 13.2.2 Sexing the Body
- 13.3 Gender Identity: Transgendered and Intersex Persons
- 13.4 Ethical issues in Genetics
 - 13.4.1 Genetic Testing
 - 13.4.2 Genetic Therapy
 - 13.4.3 Assisted Reproductive Technologies
- 13.5 Let Us Sum Up
- 13.6 Unit End Questions
- 13.7 References
- 13.8 Suggested Readings

13.0 INTRODUCTION

Genetics is a branch of biology that studies genes, genetic variations and heredity in organisms. Even though the phenomenon of heredity was observed and noted since millennia, it was first studied scientifically by Gregor Mendel, in the 19th century. The science of genetics has made great strides particularly over the past century, and scientists are able to understand many aspects about how characteristics and traits are passed on from one generation to the next. The discovery of genes, DNA (Deoxyribonucleic acid) and its structure made it possible for scientists to understand the workings of heredity in detail. Genes hold the information to build and maintain an organism's cells and pass genetic traits to offspring. The human genome project, a multi-nation venture, completed the total sequencing of the human DNA (Deoxyribonucleic acid) over a 13 year period in 2003. It identified the approximately 20,000-25,000 genes in human DNA and determined the sequences of its 3 billion chemical base pairs. This has had tremendous implications for identification and treatment of diseases and in devising new cutting age treatments and therapies. The science of genetics has also contributed towards our understanding of sex and gender and the complex interplay of heredity and environment in the formation of gender identity. It has also made possible several new interventions and procedures with regard to genetic testing, gene therapy, Assisted Reproductive Technologies (ARTs) and genetic modification, enabling humans to interfere and intervene in 'natural' processes, creating some important ethical and legal issues and questions. We shall examine some of these issues from a gender lens and a feminist perspective. Feminists have closely observed and tracked these developments and their possible impacts upon the autonomy and agency of

women. As this course has attempted to show you, science and technology are not gender neutral; the relationships of power, control and dominance need to be uncovered and deconstructed.

13.1 LEARNING OUTCOMES

After Studying this Unit, you would be able to:

- Discuss the inter-linkages between biological and social factors in understanding the categories of sex and gender.
- Understand the ‘nature vs. nature’ debate; and
- Critically discuss the emerging genetic technologies with a gender lens.

13.2 SEX AND GENDER CLASSIFICATION

You have already read about sex and gender in the previous course BGS 002. Let us revise it by discussing the role of biological/genetic factors and social/cultural ones in shaping gender identity. We will revisit the existing understandings of ‘sex’ and ‘gender’, and the ‘nature’ vs ‘nurture’ debate. As you have learnt in earlier units, the terms ‘sex’ and ‘gender’ have been used interchangeably and synonymously in everyday parlance and understanding. However, the two terms have distinct meanings which have been well articulated by scholars who study gender. Sex refers to the biological differences between males and females, most often in connection with reproductive organs and functions. Gender refers to the socially constructed differences between men and women that give rise to masculinity and femininity. In the 1970s, feminist scholars promoted use of the term gender to draw attention to the reality that not all differences between men and women could be explained by biology. This helped to counter many myths and misconceptions about differences between men and women which were seen as ‘natural’ or based upon their biological make up alone. Feminist and gender studies scholars showed how these differences are based upon different cultural and social meanings and attributes that are associated with being male or female rather than exclusively upon having or not having a particular set of sex organs. Thus, the culturally wide-spread notion that women are ‘naturally’ inclined towards care giving and are therefore more ‘suited’ for professions like nursing, teaching, hospitality etc. can be countered by pointing out that this is not because of their biological attributes, but cultural conditioning and socialization. Women have been assigned the role of looking after children and the home-based or domestic activities. Therefore, they are encouraged to take up those jobs that will facilitate the performance of these traditional roles. Thus, it is a gender construction of women’s roles. Women have demonstrated that they are equally competent at performing those roles traditionally associated with males, whether it be in the fields of science and technology, military, business and finance, politics and governance. The notion that biological sex predisposes people to perform certain roles and not others, has been effectively challenged and contradicted by feminists. However, over the years, the sex-gender binary has been seen to be too simplistic, and it is

increasingly being accepted that both are interconnected and interrelated. To assume that sex is exclusively the domain of biology, and gender the domain of culture, is not considered as valid anymore.

13.2.1 Nature vs. Nurture Debate

The ‘nature versus nurture’ debate is a very old one, and raises the question of what is more important in the development of human personality, heredity (nature) or environment (nurture)?

Biomedicine seems to have tilted the scales strongly in favour of biology in this debate. At the most, there is an acknowledgement that biology interacts with culture in individual experience, but by and large biology is considered to be destiny. **Nature or heredity** refers to traits that are inherited or genetic. For example, eye colour, skin type and other physical characteristics are the direct consequences of our genetic makeup. Our predispositions to respond in particular ways are driven by genetics. Certain predispositions also have genetic causes, for instance certain illnesses or health conditions are known to related to one’s genetic make-up. Heredity also determines physiological differences in males and females. Some of these differences are present at birth, and some can only be observed at the time of puberty. Heredity causes girls to reach puberty earlier than boys. It also causes boys (once they have reached puberty) to have more muscle composition and be taller than girls in general.

It has been pointed out that gender differences may also be the result of the interplay of hormones. For instance, increased level of testosterone is believed to make boys more physically aggressive. Researchers have also argued that hormones may play a role in the differences observed in visual-spatial and verbal abilities among children, wherein visual-spatial abilities of boys and verbal abilities of girls are said to be slightly higher. The notion of the ‘left brain’(which is associated with logic, reasoning etc) being better developed in males and the ‘right brain’(associated with verbal abilities and imagination) in females also is an example of how biology is seen to play a major role in determining gendered traits.

Nurture refers to the environment within which the individual is raised and grows. Environmental influences include the way the person is socialised; the values, beliefs, attitudes that they are exposed to and imbibe, all influence development. With reference to gender, we see how every culture and society promotes certain gender-specific roles and behaviours and delineates which sets of behaviours are appropriate for males and females. Gender roles and stereotypes also include those about sexuality and sexual orientation, wherein heterosexual relations (men and women as sexual partners) are viewed as ‘normal’ and same-sex relationships (men with men; women with women) as deviant or abnormal.

The question arises, is gender identity the result of nature or nurture? Is the role of genetic/biological factors predominant or are social and cultural factors more significant? This is a complex question which is also ethically challenging to study. Those individuals who fall outside the ‘binary’

understanding of sex and gender, such as intersexed, trans-sexual or members of LGBTQI community have faced stigma and discrimination in society as earlier mentioned.

13.2.2 Sexing the Body

This sub-section is drawn from Unit 2, Block 1 of MWG 002. Feminists interested in the field of science who were keen to investigate ideas of sex and their possible relationship to gender. In our everyday understanding of the anatomical differences of sex, we conceive of it as something given or fixed. When we refer to women as biologically female, we have in mind one or more of the following — female genitals, an XX chromosome structure and certain female hormones. Men, on the other hand, are identified by male genitals, an XY chromosome and male hormones. But what does all this mean? How have scientists discovered and theorized these various aspects? Do all women and all men have these characteristics and in the same way? Are we clearly divided into two sexes?

There is now a large literature on these kinds of issues, and there seems to be nothing obvious about how sex works. First and foremost, it is necessary to question a naive approach to the field of science itself. It is commonplace to think of science as objective and neutral since it is studying the seemingly non-social aspects of the world, life forms, plants, animals and human beings. Especially after the widespread discovery of theories of evolution – the idea that human beings evolved at some early point in prehistory from apes – which displaced to a considerable degree religious beliefs about the origins and nature of human life, science has become the most powerful source of “truth” about us and our worlds. It is important to reflect on how research done by science is exerting tremendous influence over our understanding, including biological theories about sex and what is considered the natural development of men and women in society. Such influences may be at their strongest in western societies, but they are increasingly gaining ground in contexts like ours as well.

A good place to start would be with what makes us male and female. According to the feminist scholar of science, **Anne Fausto-Sterling**, who is a biologist and a feminist, it is actually quite impossible to somehow separate out purely “scientific” and purely “biological” characteristics. They are invariably entangled and embedded in social ideas, that is to say, our notions of gender. For instance, it seems easy to say – based on contemporary science – that a combination of external genital characteristics, chromosomes and hormonal balance determines the sex of a person. But what exactly is this combination and how does it work? There are no clear answers here. This is most obvious when it comes to trying to understand the nature of bodies where the sexual characteristics are not obvious – such as the bodies of those who are intersex (with different combinations of male and female characteristics), or when external genitals are not matched by the corresponding male or female chromosomes. Thus, for instance, if a particular body has the XY chromosome but not the corresponding male genitalia, what should be the sex of such a person? There can really be no answer to such a question. The functioning of hormones, for instance is also

quite complex, since men and women have, in fact, both male and female hormones in their systems. **Fausto-Sterling** has shown quite convincingly how scientists as far back as the 18th century onwards believed that it was necessary to maintain a clear distinction between two sexes – indeterminate sexes should be “normalized” as far as possible and brought as close as possible to one sex or the other. This belief has only been more widely criticized in very recent years. Let us discuss the issue in more detail and reflect upon how gender identity can be a complex and sensitive phenomenon.

Box 13.1: Sex Determination Tests: The Case of Santhi Soundarajan

*In 2006, **Santhi Soundarajan** became the first Tamil woman to win an Asian Games medal.*

But after her victory in 2006, she was subjected to a disrespectful and invasive scrutiny of her biological sex. Sex tests, also known as gender determination tests, for sporting events became a prevalent practice in 1950 after the International Association of Athletics Federation (IAAF) began physical examination, of female athletes. Initially only a physical examination of the body and genitals would determine the gender of a person. However, from the Mexico Olympics (1968) onwards chromosome tests were used to determine the gender. In 1999 blanket sex tests for female athletes were abolished but they continue to be used in specific cases.

When Soundarajan returned from Doha, where the 2006 Asian Games were held, she was surprised to learn that she had failed her sex test. The same sex test which had been conducted after her victory without giving her any proper information or receiving her proper consent for reasons which remain publicly unknown. The test determined that Soundarajan did not have female sexual characteristics and hence she was barred from competing in any sporting event and her medal was taken back from her.

One of the most controversial aspects of sex-verification tests is the fact that it is assumed that only two combinations of chromosomes – XX for female and XY for male – can exist in a body. There can be multiple chromosome variations present in a body. A woman, therefore, can have the Y chromosome cohabiting with the X chromosome. It was later determined that Soundarajan had partial androgen insensitivity syndrome (PAIS).

However, the very foundation on which sex tests have been conducted neglects and excludes all kinds of chromosome variations limiting itself to a chromosome binary which remain grounded on a patriarchal understanding of what gender and biological sex are.

The sporting world is perhaps one where the gender binary of male/female is the most visible, excluding all intersex and transgender people. The patriarchal values of ‘men are stronger/better/more physically capable’ continues to dominate the narrative for conducting

*sex tests. (Extracts from ‘**Santhi Soundarajan and the Misogyny of Sex Verification Tests in Sports**’ by Isheeta Sharma, *Feminism in India* 25 November 2020.*

<https://feminisminindia.com/2020/11/25/santhi-soundarajan-gender-determination-test/>

Check Your Progress Exercise I

Note: I. Use this space given below to answer the question.

II. Compare your answer with the Course material of this Unit.

1. What is the meaning of gender classification?

.....
.....
.....
.....
.....
.....

2. Explain the Nature vs. Nurture debate in feminism.

.....
.....
.....
.....
.....
.....

13.3 GENDER IDENTITY: TRANS-GENDERED AND INTERSEX PERSONS

Gender identity is an individual's self-conception of being male or female based on his or her association with masculine or feminine gender roles. This need not always tally with one's biological characteristics.

Cisgendered individuals identify their gender with the gender and sex they were assigned at birth. Individuals who identify with the gender that is the opposite of their biological sex are transgendered. For example, persons assigned the female sex at birth may strongly identify and feel themselves to be psychologically and emotionally like males in their society. Similarly, those assigned the 'male' sex at birth may actually identify themselves as females. Transgendered people feel as if they are trapped in the wrong body. it is not a passing phase, nor is it the same as 'cross dressing'(wearing the clothing of the 'opposite' sex) for purposes of self expression or personal style. Transgendered individuals who change their bodies to align with their gender identity by going in for surgery or hormonal therapy are called transsexuals. This is a major life decision and involves expensive and painful surgical treatments. Not all transgendered persons take this route and may present themselves to society as the gender they identify with by adopting the dress, mannerisms, names etc of their chosen gender.

“Throughout history and across different cultures, individuals with “third gender” (as well as “fourth gender” or even more varieties) have been recognized, with varying degrees of social acceptance. These include the hijra or khawaja sira of South Asia and the kathoey of Southeast Asia, who have been given legal recognition to various extents in countries such as India, Pakistan and Thailand. In addition, many Indigenous American peoples recognize individuals with third, fourth or otherwise non-binary gender roles, collectively referred to as “Two Spirit” people. It is important to note that the social and cultural meanings of these third/non-binary genders do not always correspond neatly with those of trans identity in Western societies, and there has been some concern in these countries or communities that Western transgender culture and identity may conflict with their traditional third gender culture”. (Source: Information Brief: Sex, Gender and Genetics. Personal Genetics Education Project (pgEd.org) 2019)

Sociological research shows us there is a strong social and cultural aspect in the way in which individuals assume a gender identity of being either masculine or feminine, or a sexual identity of being sexually attracted to either men or women. These identities are sustained by social norms and conventions. Whenever these norms are transgressed or crossed, as in the case of trans-gendered, intersexed persons, or the gay or queer persons, social stigma, discrimination, ostracism and violence may result. They may be regarded as deviants, perverts or diseased people. They may be subjected to all sorts of ‘treatments’ to ‘cure’ them. They may consider themselves as ‘misfits’ in society and feel that they have no place or value in a world that simply does not understand them.

Let us now briefly discuss intersexed individuals. **Anne Fausto-Sterling** (2000) asserts that the assumption of Western society that there are only two sexes, male and female-is inadequate. On the basis of her research with intersex or hermaphrodite children, who are born with a mixture of male and female organs, she identifies at least 5 sexes; males, females, ‘herms’ (having both testes and ovaries); ‘merms’ (having testes and some female sex organs) and fermes (having ovaries and some male sex organs). However, because of the practice of assigning a baby as either male or female, doctors make the decision based upon their assessment of the intersex baby and may even recommend surgical interventions which have scarred individuals for life (Fausto-Sterling, 2000). The famous ‘John/Joan’ case (see **Box 13.3**) demonstrates how complex sex and gender are and how difficult it is to understand whether nature or nurture are the determining factors. **Fausto-Sterling** advises against sex-assignment surgery for intersex infants and advises counselling and providing sufficient information to the family.

The variability of gender and sexuality can also be observed through the experiences of “gender and sexual outsiders” such as homosexuals, bisexuals, transsexuals, women who do not look or act “feminine” and men who do not

look or act “masculine,” etc. Since it is not possible to verify clinically the sex of all those we meet, we can only guess it from the way they display their gender by correlating it with the culturally recognized symbols or markers of gender. Thus, gender can also be understood as a “performance which is enhanced by props like clothing and hairstyle, or mannerisms like tone of voice, physical bearing, and facial expression”. In order to “pass” as a member of a gender, these signs need to be communicated clearly. This is often a problem for transgendered and transsexual individuals and can cause them much stress and anxiety.

BOX 13.3: The Case of John/Joan

David Reimer was born in Winnipeg, Canada in 1965, as a male identical twin. However, as a result of a circumcision accident at age 7 months he lost his penis. Experts counseled that David should be surgically altered and raised as a girl. At age two David, known as “John” in the literature, had his testes removed and he became “Joan.” Her mother was cited in the literature as saying that Joan loved wearing dresses, hated getting dirty, and enjoyed having her hair set. As Joan’s biologically identical male twin continued to mature in a manner typical to boys, it seemed to demonstrate the dominant influence of gendered patterns of child-rearing on the formation of gender identity. Joan was being raised as a girl, her male sex organs had been surgically altered, and her transition from boy to girl seemed unproblematic.

*However, in 1980, a BBC documentary doing a follow up on the famous case discovered that by the time Joan was thirteen she was not well adjusted to her sex assignment (**Fausto-Sterling, 2000**). She peed standing up, walked like a boy, wanted to be a mechanic and thought boys had better lives than girls. Eventually it came out that she had eventually had her breasts removed, had a surgically reconstructed penis implanted, and had married a woman and was fathering his wife’s child. Contradicting the original findings, John/Joan’s mother reported that Joan had consistently resisted attempts to socialize her as a girl. Sadly, following a period of severe depression, David Reimer killed himself at the age of 38.*

The above case seems to suggest that the impact of ‘nature’ and the genetic make-up of the individual played a more significant role in gender identity than upbringing and socialisation as a girl. What is clear though is that the nature-nurture debate is not an ‘either-or’ matter; sex and gender are both fluid categories. (Source: Introduction to Sociology, 1st Canadian Edition. Ch.12)

Check Your Progress Exercise II

Note: I. Use this space given below to answer the question.

II. Compare your answer with the Course material of this Unit.

1. Define gender identity.

.....

.....
.....
.....
.....
2. What is the meaning of “*Two Spirit*” people?
.....
.....
.....
.....
.....

13.4 ETHICAL ISSUES IN GENETICS

The tremendous advances in the science of genetics have made it possible for human beings to experiment and intervene in the fundamental processes of life itself. As mentioned earlier, the completion of the Human Genome Project in 2003 provided a “rough draft” of the human genetic code, with more details added almost daily. This information can be used to predict as well as treat diseases. ‘Genetic sequencing’ enables scientists to identify mutations or changes in the genes which can lead to either to genetically-based diseases or to an increased susceptibility to chronic illnesses such as diabetes, heart disease, and various cancers. This gives rise to several ethical issues which scholars of gender have also paid close attention to, as they concern the issues of consent, privacy and exercise of power, all of which are feminist concerns also. With regards to **privacy and confidentiality**, the issue to be noted is how scientists, physicians, employers, insurance companies, and other interested parties may ethically use an individual’s genetic information. For instance, if a person is found to have genetic mutations that predispose them to certain cancers, this information may be used to deny them health insurance or other kinds of discriminations. In cultural contexts such as that of India, such information may create stigma and affect the marital prospects of women who may be identified as having ‘defective’ genes. Another major area of debate is the pros and cons of genetic testing, including pre-natal testing (testing of the unborn fetus in the womb). Let us discuss it in more detail.

13.4.1 Genetic Testing

Prenatal genetic screening is carried out to detect genetic anomalies in the fetus through a process called **amniocentesis**. A sample of the amniotic fluid surrounding the fetus is drawn out with a needle after the 12th week of pregnancy and the cells are tested. Frequently, prenatal testing is used as a justification for induced abortion if certain genetic abnormalities are found which are likely to result in disabilities like Down’s Syndrome etc. **Preimplantation Genetic Diagnosis (PGD)** refers to genetic testing of embryos produced through in vitro fertilization (IVF). A single cell is

removed from 3 day-old embryos and analyzed for certain genetic markers. If a genetic abnormality is discovered, such embryos are usually discarded. This raises profound ethical questions regarding the devaluing of persons with disabilities and their right to life. It also highlights the difficult position of the woman who is going to bear the child. While the decision to abort the fetus or discard the defective embryos may be seen as a matter of reproductive choice, they also highlight the absence of social support and protection for children born with disabilities and their families.

Pre-natal testing has also been used to determine the sex of the unborn baby, and in societies where there is strong son preference, pre-natal sex screening followed by abortion of female fetuses has become a social evil. In India, the elimination of unborn female children has led to a serious imbalance in the sex ratio which in turn leads to other social problems and increasing violence against women.

Genetic testing can also be performed in adults in order to assess for diseases and conditions that have a genetic component such as diabetes, heart disease and certain cancers. For instance, the mutations in BRCA 1 and BRCA 2 genes can fairly accurately indicate the likelihood of breast cancer. Although men also may suffer from breast cancer, the issue tends to be mostly associated with women. Women identified as being at a higher risk, having a strong family history, may be advised to go in for mastectomy or breast removal surgery to prevent the onset of cancer. The significance of the breast in notions of femininity and identity is noteworthy, and making such a difficult decision can prove psychologically and emotionally traumatic for a woman (Chadwick, 2009).

13.4.2 Genetic Therapy

Genetic therapy refers to inserting new genetic information into an individual's cells to replace abnormal or mutated genes in order to treat a genetically based disorder. Somatic **cell gene therapy** involves alteration of the genes of an affected individual, often only in a target organ or tissue. The modified cells are somatic cells, or non-reproductive cells and the changes would not be transmitted to future offspring. In contrast, **Germ-line gene therapy** involves the alteration of germ-line cells (sperm cells or ova) of an individual, so that the changed genetic characteristics would be passed on to subsequent generations. (Sullivan, n.d.).

Gene therapies according to some authors, may also be taken forward to 'enhance' or 'improve' human abilities or capabilities, and the idea of creating 'designer babies' with the desired characteristics and attributes may soon become a reality. In Vitro Fertilisation (IVF) has become a fairly common procedure for couples who cannot naturally conceive a child. IVF enables the specialist to pre-select embryos through the process of preimplantation genetic diagnosis (PGD) described earlier. Thus, the embryo can be screened for various genetic traits other than merely screening them for the presence of genetic disorders. This may lead to a future scenario of pre-selection of 'desirable' traits including skin or eye colour, athletic abilities, height etc. Genetic modifications done for enhancement rather than

treatment purposes may cause social discrimination and increase inequalities between the 'haves' and 'have nots'. (Ly, S. 2011) From a gendered lens, Chadwick (2009) writes:

“While the distinction between therapy and enhancement raises a number of issues, the significant question in this context is to what extent enhancement could advance the interests of women, or not; and a pertinent issue here is how an “improvement” is defined and by whom, in a social context in which gender based discrimination exists. The general point can easily be seen by looking at a historical nongenetic example, such as the practice of foot-binding to enhance a woman’s attractiveness” (p.16)

13.4.3 Assisted Reproductive Technologies

Assisted Reproductive Technologies refer to the manipulation of sperms, eggs or embryos in a laboratory for producing pregnancy. It includes In Vitro Fertilisation (IVF), the most common procedure, and also the use of donor eggs, donor sperm, or previously frozen embryos. It may also involve a surrogate or gestational carrier. A surrogate is a person who becomes pregnant with sperm from one partner of the couple. A gestational carrier becomes pregnant with an egg from one partner and sperm from the other partner. ARTs have been touted as a ray of hope for couples who are unable to conceive naturally. However, from a gendered perspective, these technologies may not necessarily be empowering and in fact may even result in the notion of compulsory motherhood being strengthened and reinforced.

We may ask, to what extent do new reproductive technologies (IVF) reinforce heteronormativity? Do they possibly de-link reproduction from sexuality and marriage? In other words, have these technologies expanded the option of reproductive choice and rights for LGBT identified communities and individuals? The availability of these technologies is usually limited to heterosexual women, thereby excluding other gendered identities. IVF is simply a technological fix to the socially constructed notion of infertility; within the confines of marriage and biological family, it however, does not enable us to question the notion of infertility as social stigma. Hence, while technology in itself may not be gendered, its usage within particular socio-cultural contexts does propagate gendered and exclusionary mindsets and practices. The heterosexual family is upheld as the norm, to the exclusion of all others.

Assisted reproductive technologies can be conceptualized not merely as mere technology. These technologies have inter-linkages with other aspects of society such as social arrangements, patriarchy, power relations, and health issues. We need to contextualize the issues of motherhood, progeny, and the stigmatization of infertility within the framework of new developments, such as the growth of reproductive technologies in the market.

The globalization of reproduction has intensified the growth and establishment of fertility industries in South Asian countries which is further leading to commercialization and commodification of the women’s bodies, reproductive tissues and organs. The exploitation of women’s bodies has

become inevitable in this period of globalization of market and reproductive technology, hence provoking critical questions for feminist engagement. (Unit 2, MWG 001)

Check Your Progress Exercise I

Note: I. Use this space given below to answer the question.

II. Compare your answer with the Course material of this Unit.

1. Explain Genetic Testing.

.....
.....
.....
.....
.....

2. What is the meaning of Genetic Therapy? Explain.

.....
.....
.....
.....
.....

13.5 LET US SUM UP

This Unit has introduced you to some of the debates in the domain of gender and genetics. It discussed the concepts of sex and gender and the difficulty in making a clear separation between the two. It examined the ‘nature vs nurture’ debate in the light of understandings about the interactions between biology, society and culture in shaping the individual. It discussed the ethical issues around genetic testing, modification and new reproductive technologies with a gender lens, and discussed whether these technologies empower women or further reinforce patriarchal understandings of women’s bodies.

13.6 UNIT END QUESTIONS

1. Explain some of the key ethical issues in genetics. Give suitable examples to substantiate your answer.
2. How does gentic debate expand the understanding of gender? Discuss.
3. Differentiate between sex and gender. Offer a critical feminist perspective to explain it.

13.7 REFERENCES

Sullivan, Dennis M. <https://bioethics.com/genetic-ethics-101>

Little, William (2014) 'Gender Sex and Sexuality' in Introduction to Sociology, 1st Canadian Edition accessed from <https://opentextbc.ca/introductiontosociology/chapter/chapter12-gender-sex-and-sexuality/>

Chadwick R., (2009), Gender and the Human Genome. In: *Some Issues in Women's*

Studies, and Other Essays (A.R. Singh and S.A. Singh eds.), *MSM*, 7, Jan - Dec 2009, p10-19.

Fausto-Sterling, Anne (2000). *Sexing the Body: Gender Politics and the Construction of Sex*. New York: Basic Books

Ly, Sarah, "Ethics of Designer Babies". *Embryo Project Encyclopedia* (2011-03-31). ISSN: 1940-5030 <http://embryo.asu.edu/handle/10776/2088>. 13.7

Sharma, I. (2020). '**Santhi Soundarajan and the Misogyny of Sex Verification Tests in Sports**'. *Feminism in India*, <https://feminisminindia.com/2020/11/25/santhi-soundarajan-gender-determination-test/>.

13.8 SUGGESTED READING

Sullivan, Dennis M. <https://bioethics.com/genetic-ethics-101>