

UNDERSTANDING SEX AND GENDER



For several decades the term gender has come into common use, particularly as a synonym for sex and in discussions of sexual identity. The term has proved useful, although the distinction between the terms gender and sex has not been firmly established. In casual conversation, the context usually makes the meaning clear. However, in medical, social, legal and religious discourse, inconsistent use of these terms can lead to confusion and lack of understanding.

Historically, the term sex has been used to designate matters related to the biological determination of male and female (i.e. sex chromosomes, sex hormones, testes or ovaries and male or female internal and external genitalia). This is **biological sex**. Historically, those who had disorders of sexual development while in the womb of the mother and were born with some indeterminate or mixed characteristics of both male and female were called hermaphrodites. The correct term is **Disorders of Sex Development (DSD)**. The common term used for DSD is intersex.

The term **sexual orientation** is used to indicate erotic attraction towards the same or other biological sex (or both). In contrast the term **gender** was used to determine the social and cultural context of male and female roles and behaviour, and the individual self-identity as belonging to one or the other sex. The social/gender terms are boy and girl, man and woman. The term **Gender Dysphoria (GD)** is used to describe a person whose self-identity of gender is not in keeping with biological sex and social-cultural expectations.

In most people all aspects of sex and gender are in harmony. In some however there is discordance in

the different aspects of sex and gender. This leads to confusion and anxiety in the person concerned and in those who care for them (medical personnel, psychologists, social workers, church workers).

GENERAL RESOURCES

Mayer, LS, & McHugh, PR 2016, 'Sexuality and gender: Findings from the biological, psychological, and social sciences', *The New Atlantis*, pp.10–143, <http://www.thenewatlantis.com/publications/number-50-fall-2016>

'ToGrow (15/03/2016) - Patricia & Kamal Weerakoon - Sex, Gender, and Identity', <https://www.youtube.com/watch?v=Av20e6gYL7k>

Patricia Weerakoon on Gender and a Christian response: <https://livestream.com/waggabaptist/events/7128228/videos/152512846>

Rob and Claire Smith, 2017, 'Is this the end of gender?', *The Gospel Coalition*, April 4, <http://resources.thegospelcoalition.org/library/is-this-the-end-of-gender>

The topic of sex and gender is complex. For the purposes of this topic, we will discuss four broad categories of sex and gender:

1. Biological sex: sex development in the womb (uterus)
2. Gender roles (sometimes also called sex roles)
3. Sexual orientation
4. Gender identity



BIOLOGICAL SEX: SEX DEVELOPMENT IN THE WOMB (UTERUS)

Biological sex differentiation begins at fertilisation (conception) and proceeds through the time that the foetus (baby) is in the mother's womb.

Chromosomal sex

Chromosomal configuration is determined at the time of fertilisation in the process of an ovum and sperm fusing to form a zygote. The egg cell (ovum) contains a chromosome called the X chromosome. Sperm cells contain either an X chromosome or one called the Y chromosome. Fertilisation by a sperm carrying an X sex chromosome would result in an embryo with the sex chromosomal composition 46XX (genetic female). Fertilisation by a sperm carrying a Y sex chromosome would result in an embryo with the sex chromosomal composition 46XY (genetic male). This process sets the stage for the future sex differentiation.

It is the father's sperm which 'determines' the genetic sex of the child. The Y chromosome contains a specific gene (the smallest unit determining heredity), the 'Sry' gene, which will induce the formation of testes from the undifferentiated gonads in the male foetus.

Gonad development

The gonads (testes in a boy and ovaries in a girl) begin to develop in about the sixth or seventh week of foetal development. Development of the testes requires the presence of the 'Y' chromosome and the associated 'Testis Determining Factor' which it produces. In the absence of this factor the foetus will develop ovaries. In rare cases of intersexuality (originally called true hermaphrodites) both testicular and ovarian tissue will be present.

Hormonal sex

The developing testes begin producing the hormone testosterone almost immediately. The ovaries however do not produce significant amounts of hormone until puberty.

The hormones secreted by the testes or ovaries play an important part in developing the male or female body before and after birth and particularly during puberty. A lack, imbalance or oversupply of these hormones has a decisive influence on a person's anatomy and physiology.

During foetal development, the presence of testosterone and the sensitivity of the genital tissue results in the development of male genitalia. An absence of testosterone or an insensitivity of peripheral tissues to its effect, results in the genitals developing as those of a female. The influence of the hormones is greatly modified by the amount of each hormone available to the developing tissues and the unique hormone receptors within the body tissues.

Internal genitalia

At about 3–4 weeks of development in the uterus (womb) of the mother, the ducts and accessory glands as well as the external genitalia are in an 'undifferentiated' phase. At this stage, both male and female foetuses have the potential structures for their internal genitalia to go either way.

The development of internal and external genitalia is dependent on whether the testes are producing the hormone testosterone (and another, called mullerian-inhibiting hormone) and whether the peripheral tissues are sensitive to these. In the absence of these hormones the internal genital structures will all be female in appearance. This process is called sex differentiation.

External genitalia

Just to complicate things further, the development of male external genitalia requires the presence in the tissues of an enzyme called 5 alpha reductase. This enzyme converts testosterone to a metabolite Dihydrotestosterone (DHT). In the absence of DHT the external genitalia fail to develop the typically male structure and the newborn baby could have external genitalia that look female.

Brain sex

Do hormones or chromosomal influence affect the 'sex' of the brain? *This is the final and contested frontier.*

At one level, studies with children and adults with problems in sexual differentiation (all the categories above) and other empirical studies suggest a possibility that there may be some biological effect. It may be that the ability to show the complete pattern of male sexual behaviour in adulthood is the result of a process called the sexual differentiation of the brain which occurs during a restricted developmental period under the influence of testosterone. This is called 'nature'. However, there is just as much or even more evidence of environmental and 'nurture' factors affecting how the brain perceives sex and gender.



DISORDERS OF SEXUAL DEVELOPMENT (DSD): INTERSEX

The initial determination of sex by genes directing the gonad to become an ovary or a testis is called sex determination. The subsequent development of the genital appearance resulting from the function of that gonad is called sex differentiation. Disorders of sex development (DSD) are defined as congenital conditions in which development of chromosomal, gonadal, or anatomical sex is atypical. One in 4–5000 babies is born with some degree of ambiguous genitalia.

The term ‘ambiguous genitalia’ is used to describe a baby where an underdeveloped penis or hypertrophied clitoris (or other genital developmental problems) leads to the doctor or midwife being unable to visually identify the baby as male or female.

Listed below are some of the conditions listed as ‘disorders of sexual development’.

Category	Male	Female	Things that go wrong ...
Chromosomal sex	XY	XX	XO Turner's syndrome XXY Klinefelter's syndrome
Gonadal sex	Testes	Ovaries	Disorders of testicular or ovarian development True hermaphrodite with ovo-testis
Hormonal sex	Testosterone	Oestrogen, Progesterone	Congenital Adrenal Hyperplasia (XX) 5 alpha reductase deficiency (XY)
Genitalia	Male	Female	Androgen insensitivity syndrome 5 alpha reductase deficiency (XY)
Brain sex	Male	Female	Not known

Additional resources

John C Achermann, Erica A Eugster & Dorothy I Shulman, 2012, ‘Ambiguous genitalia’, March, *Hormone Health Network*, <http://www.hormone.org/questions-and-answers/2011/ambiguous-genitalia>

GENDER ROLES (SOMETIMES ALSO CALLED SEX-ROLES, GENDER EXPRESSION)

Gender roles are behaviours that are seen as appropriate for males or females, including attitudes, personality traits, emotions, and even postures and body language. These extend into social behaviours (occupation, dress, talk, intimacy patterns).

Society views gender roles as the product of social and cultural construction.

Androgyny is when a person does not fit neatly into the typical masculine and feminine gender roles of their society. Androgynes may also use the term ‘ambigender’ or ‘polygender’ to describe themselves. Some androgynes identify as being mentally between woman and man, or as entirely genderless. They may identify as ‘non-gender’, ‘gender-neutral’, ‘agender’, ‘between genders’, ‘genderqueer’, ‘multigender’, ‘intergendered’, ‘pangender’ or ‘gender fluid’. One way of expressing androgyny is to cross-dress as the opposite sex (transvestites).

GENDER IDENTITY

This term refers to the ways a person develops a fundamental sense of belonging to one sex and not the other, and to one gender and not the other. A young child (2–3 years) usually states ‘I am a boy’ or ‘I am a girl’. It is near impossible to assess how much of this identity is nurture (environment) and how much is nature (biological).

Ideally there is congruence between biological sex and gender identity. However in a small minority there is a disjunction. The term ‘gender dysphoria’ is used to describe this condition. Gender dysphoria refers to *discomfort or distress that is caused by a discrepancy between a person's gender identity and that person's sex assigned at birth* (and the associated gender role and/or primary and secondary sex characteristics). Transgender and transsexual are other terms used for this condition.

It is difficult to know the frequency or incidence of people with gender dysphoria. Researchers report that the condition is very rare¹.

1. De Cuypere, G, Van Hemelrijck, M, Michel, A, Caraël, B, Heylens, G, Rubens, R, Monstrey, S 2007, ‘Prevalence and demography of transsexualism in Belgium’, *European Psychiatry*, vol 22, no 3, pp. 137-141.



We must be careful to not mistake children with gender variant or atypical behaviour as those who have gender dysphoria. Gender nonconformity refers to the extent to which a person's gender identity, role or expression differs from the cultural norms prescribed for people of a particular sex. In other words their sex role behaviour does not fit the accepted norm.

Many children explore their sexual roles and preferences. A small proportion may exhibit a level of disjunction between their felt gender and their embodied biological sex. However, there are only very few of these children who actually remain distressed about the disjunction beyond puberty².

SEXUAL ORIENTATION SAME-SEX ATTRACTION (SSA)

This is defined by a person's relative responsiveness to sexual stimuli. The most obvious dimension of sexual orientation is the sex of the person one is attracted to. This then is used to classify a person as homosexual, heterosexual or bisexual. Recently some people have suggested that they may be fluid in their sexual orientation rather than bisexual.

There are two ongoing debates relating to SSA:

1. What should be used as criteria for sexual orientation? Is it erotic attraction? Same-sex fantasy? Is it behaviour? Or maybe self-identification of sexual orientation/identity (sometimes called sexual identity)?
2. Is it nurture? Or nature? Or some combination thereof?

In an Australia-wide survey, Richters³ and colleagues reported that men and women had different patterns of sexual identity. Although the majority of people identified as heterosexual (97% men, 96% women), women were more likely than men to identify as

bisexual. Women were less likely than men to report exclusively other-sex or same-sex attraction and experience; 9% of men and 19% of women had some history of same-sex attraction and/or experience. *Sexual attraction and experience did not necessarily correspond.*

The three-axis understanding of homosexuality:

1. Same-sex feelings (desire) of attraction/persistent orientation—erotic attraction to the same sex.
2. Same-sex behaviour—behaviour that involves the same sex.
3. Same-sex identity (Sexual identity) is the act of labelling oneself as gay (as well as other identity labels including straight, bi, bi-curious, lesbian, queer, questioning, curious, other, and so on). This act of labelling is both public (how others view the person) and private (how the person views him or herself).

The experience of *same-sex attraction (SSA)* is often not in a person's effective will, at least not in the same way as *behaviour* and *identity* is. Most people I have met who are sorting out sexual identity questions find themselves attracted to the same sex; they did not choose to experience same-sex attractions. What they are choosing is whether or not to integrate their experiences of attractions into a gay identity and engage in same-sex behaviour.

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2. Steensma TD, McGuire JK, Kreukels BPC, Beekman AJ, Cohen-Kettenis PT, 2013, 'Factors associated with desistance and persistence of childhood gender dysphoria: a quantitative follow-up study', *Journal of the American Academy of Child and Adolescent Psychiatry* 52:582–90; Singh D, 2012. 'A follow-up study of boys with gender identity disorder', PhD Thesis, University of Toronto.
 3. Richters, J, Altman, D, Badcock, P et.al. 2014, 'Sexual identity, sexual attraction and sexual experience', *The Second Australian Study of Health and Relationships: Sexual Health*, vol 11, 451–460.

